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EXCELL

MCDSe

Series

Service Manual

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INSTRUMENTS REQUIRED

- True RMS Digital multimeter — *example:* TEKTRONIX DMM912
- Oscilloscope with Bandwidth > 60 MHz — *example*: TEKTRONIX TDS3012
- Current probe with Bandwidth 200 Hz÷50 MHz — *example*: TEKTRONIX P6021
- Analyser for electrosurgery — *example*: FLUKE DNY 454A
- Flowmeter full scale 20lt/min
- Manometer full scale 3bar

INTRODUCTION

The electrosurgical units *EXCELL* of the series *MCDSe* are composed of the following sections:

- Power supply section;
- R.F. power stage;
- Power reading section;
- Microcontroller section;
- Section for activations by hand-switch and neutral plate contact control;
- Argon gas section control (*/A* models only).

The power supply section allows the following voltages:

- o +5V for the functioning of the master and slave microcontroller sections; this voltage is delivered by an integrated switching regulator LM2676 properly calibrated;
- o +15V and -15V for the control and driving circuits; +15V are obtained by a regulator LM2676 that has been calibrated expressly to supply this voltage; -15V are delivered by a voltage regulator LM7915 LDO , needed for all the circuits that require a dual supply;
- o +24V for the functioning of the Argon gas solenoid valves, obtained by a voltage regulator LM7824 LDO;

- +5V for the foot-switch activation circuit, delivered by a voltage regulator LM7805 LDO; because of insulation, this voltage has a ground reference separated from the other circuits;

The power supply section allows also the variable continuous voltage, from 3 to 135V, to supply the R.F. power stage; this voltage is obtained by a switching section, driven by an integrated circuit UC3525 PWM, as main element. It provides for the driving signals of two IRF740 mosfets: at their output, it is possible to take the filtered and continuous voltage that must be supplied to the following circuits.
The R.F. power stage is an oscillator section composed of four power mosfets dynamically connected in parallel; each of them is driven independently by a MIC4451mosfet driver. The square wave signal coming from the mosfets is filtered by a L/C section, which makes it sinusoidal; then, it is transferred to the output transformer. In this section, there are also the output voltage peak and maximum current monitoring circuits of the mosfets.
Before reaching the patient, the R.F. energy is detected by the power reading section, which identifies in real time output current and voltage, by sending proportional signals to the microcontroller: the latter provides for the general control of the supply of each single unit function.
The microcontroller section is composed of two elements: the first one acts as *Master*, while the other one as *Slave*. In this way, it is possible to have many advantages; the most important ones are:

- The correct division of the tasks between the microcontrollers, in order to avoid the overload of one of them only and, consequently, a lower control speed;
- The mutual check of the two microcontrollers, in order to eliminate the possibility to have a functioning outside the safety limits.

Both of them are equipped with a FLASH EPROM: therefore, the functioning software is placed inside them, and there is no need of external memories, except for a small E^2PROM to store the settings shown on the panel at the moment of the switching off, which will be shown again during the next activation. The communication between the two microcontrollers is possible thanks to the I^2CBUS standard of serial communication, with which they “speak” also with some I/O expanders placed on the supply section, the control section of the activations by hand-switch and the neutral plate, as well as the main board. The use of these devices reduces the connections inside the unit.
The control section for the activations by the hand-switch and the detection of quality of the neutral plate/ tissue contact provides for the organization of the signals that come from the buttons placed on the handles; these signals are sent to the microcontroller that verifies them and gives the right power according to the activation. The signals must be properly insulated from the output circuit; this section is able to manage the simultaneous presence of two handles as well.
The circuit of the neutral plate provides to inform visually and in real time the operator about the quality of the contact between the neutral plate and the patient tissue, in order to avoid the risk that a non optimum contact burns the patient. If split neutral plates are adopted, some lights on the panel will give this information until the complete interruption, if necessary, of the R.F. power delivery, or until the re-settlement of a good contact.
Into the */A* models, there is the Argon gas control section, which improves the versatility of these electrosurgical units, by matching all the functions of the electrosurgical unit with those of the Argon gas coagulator. This section is composed of some pneumatic components that send and receive signals from a dedicated control board; thanks to it, the operator can set the gas flow to be delivered, he is informed in

case of the cylinder pressure is not sufficient or it is too high, and finally he can see the real gas flow that has been supplied.

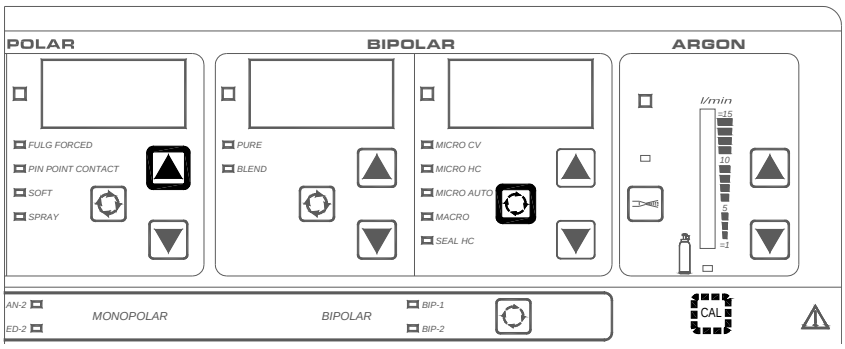
PRELIMINARY

In order to avoid the use of the unit in case of failure, at the moment of the switching on a selftest phase verifies all the main parameters for the use in total safety; only if there is no damage and the calibration is adequate, the unit finishes its selftest positively, allowing the operator to use the machine. By the contrary, if some problems are detected, it will not be possible to activate the equipment: on the display will appear an error message about the test that has given a negative result during the selftest phase.

As the normal use mode does not allow the execution of tests in case of anomaly, it has been introduced the possibility to switch the unit in the *calibration* mode: the latter, which is selectable through a particular combination of buttons, avoids the tests that, in case of negative results, would block the functioning of the equipment. In this way, the operators can verify some diagnostic parameters, and thanks to them they can determine the section where the failure has occurred. Moreover, some parameters are calibrated by the software first, and then memorized in an E^2PROM placed inside the unit.

The access to the *calibration* mode is possible in two ways:

1) by switching the unit on, and keeping the hidden calibration button pressed;
2) with the unit already on, by pressing at the same time the buttons of calibration, bipolar coagulation mode and the monopolar coagulation output level increase (this mode cannot be used in case of a failure detected at the switching on, as the identification of a problem interrupts the functioning of the keyboard; so, it is useful in case of change of the calibration without failure).



In the *calibration* mode, the displays show values in hexadecimal codes, which are different from those visualized during the normal use; in order to perform any type of calibration, it is necessary to press the button CAL. At this point, the monopolar section displays start blinking, the light for the setting mode gives a signal and the bipolar section displays remain switched off. In the monopolar Cut section, the operator sets the type of test he wants to perform; if the test requires additional parameters, these are selected into the monopolar Coagulation section. For example, if the operator wants to verify the reading of the A/D inputs (one of the internal parameters), he will set 01 on the display of the Cut (i.e. reading of the A/D converters) and a number on the display of the Coagulation related to the input to be read (i.e.: 04 means that the operator wants to read the A/D input no. 4). During the activation, the result will be visualized on the monopolar Cut display of the unit; it will be always the monopolar Cut display to be used, independently of the selected function (example: the reading of a A/D converter that concerns one mode of the bipolar Coagulation will be set, if necessary, on the interested function, but it will be always visualized on the monopolar Cut display).

Once selected what has to be calibrated, if further settings about the modality to test are not necessary, it is sufficient to activate the unit into the function that needs the calibration: automatically, the equipment goes

from the visualization of the calibration parameter to the visualization of the power setting (by remaining in the *calibration* mode); in order to proceed to the next calibration, it is necessary to press the CAL button again and go back to the mode of the monopolar section with the blinking displays. The following Table shows the whole list of the selectable tests:

Monopolar Cut Display Test n°	***Description***
00	Continuous supply of the power stage
01	Internal parameters of the R.F. section
02	Functioning of the R.F. section without feed-back
03	Peak voltage R.F. (Voutpk)
04	Drain current into the mosfets of the R.F. section
05	R.F. leakage current with control made by the software
06	R.F. leakage current without control
07	Start/Stop impedance adjustment for the automatic bipolar mode
08	*Not Used*
09	Reading of the data that come from the analogical inputs of the micro Slave
0b	Visualization of the current software release
0C	Loading of the default values
0d	Reading of the errors memorization
0E	Cancellation of the errors list into the E^2PROM
0F	Complete cancellation of the E^2PROM

CALIBRATION OF THE POWER SUPPLY SECTION – SETTING OF THE LOW VOLTAGES

Before proceeding with the calibration of the section that controls the supply of the power R.F. generator stage, it is necessary to verify the continuous low voltages. To do that, connect the positive terminal of a multimeter to the points indicated in the following Table:

Test Point	***Voltage (VDC)***
L6	+5.08
L7	-15V
L8	+15V
U6 (pin 3)	+24V
U13 (pin 3)	+5V

Set the R31 pot placed on the Power Supply board (Alsa code: 801471) in order to set exactly the +5V continuous voltage for the microcontroller section.

CALIBRATION OF THE MASTER MICROCONTROLLER BOARD REFERENCE VOLTAGE

If present, remove the J11 jumper.

Connect a multimeter between the test point J10 and GND; set the R102 pot placed on the Master Microcontroller board (Alsa code: 801469) in order to obtain a voltage of 5.00V (± 0.01V).

Once the calibration has been performed, close the J11 jumper.

CALIBRATION OF THE SLAVE MICROCONTROLLER BOARD REFERENCE VOLTAGE

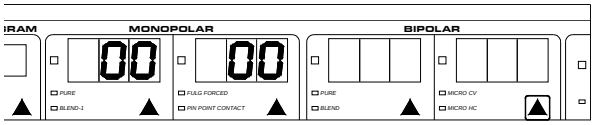
If present, remove the J12 jumper.

Connect one multimeter between the pin n°2 of J12 and GND; set the R60 pot placed on the Slave Microcontroller board (Alsa code: 801467) in order to obtain a voltage of 5.00V (± 0.01V).

Once the calibration has been performed, close the J12 jumper.

CALIBRATION OF THE POWER SUPPLY SECTION – SETTING OF THE HIGH VOLTAGE

Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:



Press the CAL button so that the displays stop blinking. Connect one load of 500ohm/100W to J1 and J2 connectors placed on the Supply board (Alsa code: 801471); connect one multimeter in order to measure the voltage in parallel to the load. Set the R52 (maximum level) and the R24 (minimum level) pots to obtain the values shown in the following Table:

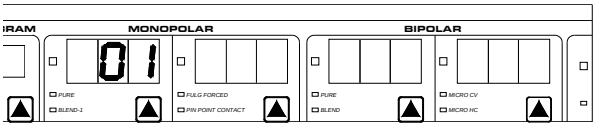
Setting	***Voltage (VDC)***	***Monopolar Coag 05***
E6	135,5	
0C	8,8	

With the blinking displays, and by setting 05 into the monopolar Coagulation section, it is possible to read the converter A/D "AD5" that sends the value, detected by the microcontroller, about the supply voltage of the power section.

As these calibrations are interactive, it is advisable to repeat the control of the minimum and maximum levels at least twice.

CONTROL AND CALIBRATION OF THE INTERNAL PARAMETERS

Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:



Connect the current probe to one of the conductors of the damping resistor, placed at the bottom of the metal box.

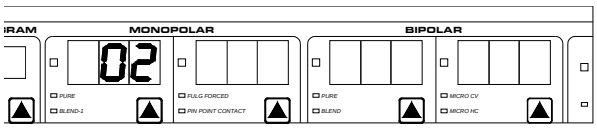
Press the CAL button so that the displays stop blinking; set 42 in the monopolar Pure Cut mode. Switch the equipment on: the measured current must be 331mA (± 3%). If the measured value is deeply different with respect to the one indicated, operate on the loops of the L1 inductor, by changing its position around the core until the indicated value is obtained (ATTENTION: In order to modify the position of the loops, it is necessary to take the R.F. generator board away, then make the intervention, and finally place the generator board again. At this point, repeat the measure).

Set 12 in the bipolar Pure Cut mode; by switching the equipment on, the measured current must be 70mA (± 2mA).

CALIBRATION OF THE READING BOARD "VOLTAGE/OUTPUT CURRENT"

The calibration must be performed only when a component of the reading board "voltage/current" is replaced; in this case, it is advisable to match the board to the new tolerances present in this section.

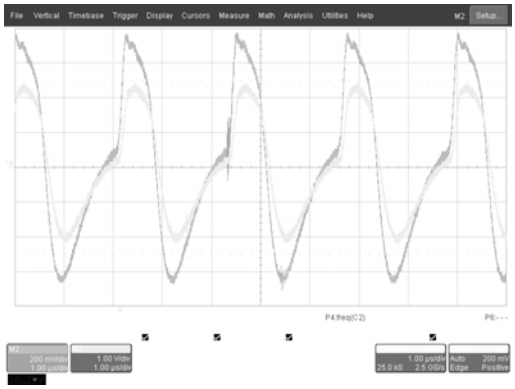
Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:



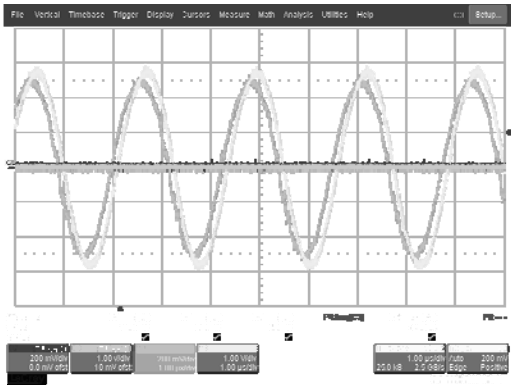
02 permits the R.F. power delivery without feed-back, by allowing the calibration of the reading section; thanks to the absence of the feed-back, it is possible to detect directly the influence of the calibrations performed by the operators on the R.F. power delivery, by avoiding the intervention of the microcontroller that wants to stabilize the power itself.

Press the CAL button again.

Connect the probe of the oscilloscope at the test point indicated with Vref on the R.F. board Output Current and Voltage board" (Alsa code: 801464). Set the R24 pot in order to obtain a voltage of -2.835V. Connect the probes of the oscilloscope to the test points indicated with "V" (TP3) and "I" (TP4); set 22 in the monopolar Pure Cut mode; connect a 400ohms non-inductive load to the active monopolar output. Switch the unit on and verify that the signals having the probes connected to are in phase. Repeat the same operation in the bipolar Pure Cut mode, by setting 29 and by connecting a 400ohms load to the active bipolar output.

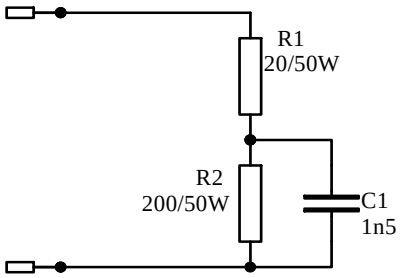


Monopolar



Bipolar

Connect a simulation load (composed of a resistance of 250ohm/50W that is connected in parallel to a capacitor of 1.5nF) at the bipolar output:



Connect the oscilloscope probe to the test point indicated with "Phase"; switch the equipment on, by setting 22 in the bipolar Pure Cut mode, and set the R57 pot in order to obtain a voltage of 3.00V.

Set 5 in the monopolar Pure Cut mode, and connect a load 400ohms to the selected monopolar output; connect the current probe in series to the load, and a voltage probe to the test point indicated with “I-IN” (TP1). Switch the equipment on, and set the R54 pot: the value read by the voltage probe must be exactly the double of the current measured by the probe connected in series to the load.

The main aim of this check consists in obtaining an output current of 500mA (in other words, 1.00V at the test point “I-IN”): to do that, it is necessary to find the better “compromise” between the value of the power set and the load connected to the output that permits the delivery of this current.

Start by setting 71 in the monopolar Pure Cut mode: switch the equipment on, and change the load at the output until the current flowing in the load reaches 500mA; connect a probe of the oscilloscope at the test point indicated with “I-IN” (TP1), and a second probe at the test point “IdB”. Switch the equipment on: the signal “I-IN” must be 1V. Set the R49 pot: “IdB” must be 0.00V (± 1%). In order to obtain the maximum reading reliability, set the vertical sensibility at 20mV/div for the reading of “IdB”.

Set 0A in the monopolar Pure Cut mode; switch the equipment on, and set the R61 pot: at the test point “IdB”, the value must correspond to the logarithm of the voltage measured at the point “I-IN”:

$$I_{dB} = \ln(V_{I-IN})$$

if, for example, the operator obtains a voltage of 110mV when activating the unit, the value to set R61 will be:

$$I_{dB} = \ln(0{,}110) = -2{,}20$$

Set again in the monopolar Pure Cut mode the value that had permitted before to obtain 500mA of current, and verify that “IdB” still is 0.00V.

Connect the probes to the test points indicated with “V-IN” and “VdB”; set 52 in the monopolar Pure Cut mode. By switching the equipment on, the measured value in “V-IN” must be 1.00V; just in case the voltage is different from this value, change the setting of the power in order to obtain the specified value. Once this setting has been completed, set the R50 pot to have on “VdB” a signal at 0.00V in correspondence of 1.00V on “V-IN”. Also in this case, it is advisable to set the sensibility of the oscilloscope at 20mV/div in order to obtain the maximum reading reliability; moreover, for the measurement of the signals with continuous wave shape, the operator must reduce the bandwidth on the channel of the oscilloscope in order to eliminate as much as possible the noises on the low amplitude signals.

Set 05 in the monopolar Pure Cut mode; switch the equipment on, and measure the value at the test point “V-IN”. Now, activate the unit and set the R62 pot in order to obtain at the test point “VdB” a value that corresponds to the natural logarithm of “V-IN”:

$$V_{dB} = \ln(V_{V-IN})$$

At the end, verify again if, by setting the power in the Pure Cut mode in order to have “V-IN” at 1.00V, “VdB” still is 0.00V.

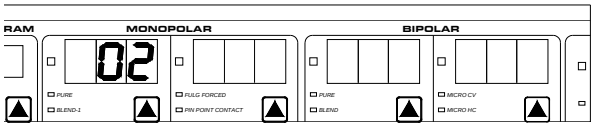
Exit from the *calibration* mode by pressing the combination of the three buttons: calibration, selection of the bipolar coagulation mode and monopolar coagulation power increase. The operator can also exit by switching off and then switching on the equipment without pressing any button. Set 100 into the SPRAY coagulation mode; connect at the selected monopolar output a 350ohms load with the current probe placed in series to the load. Switch the equipment on, and set the R81 pot in order to calibrate the value of the power supplied according to what had been set. Notably, a power of 100W corresponds to a current of

535mA on the load indicated before. Check the right supply of power, by setting also other lower values and, if necessary, set the R81 pot again.

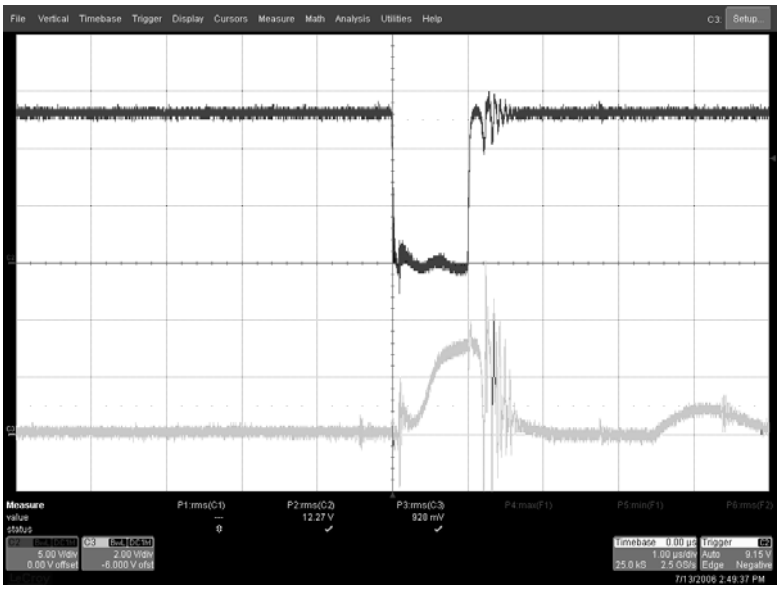
Set the Auto Pure monopolar function at 200; at the selected monopolar output, connect a 200ohms load; switch the equipment on, and set the R30 pot in order to obtain an output current of 1.0A. Verify the correspondence existing between the selection and the R.F. power delivery, even in the Pure Cut mode and in the bipolar Blend mode.

MATCHING OF THE POWER MOSFETS DRAIN CURRENT

Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:



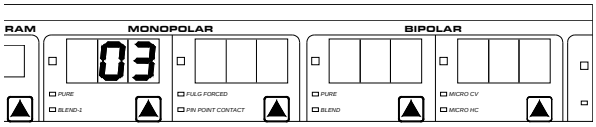
Press the CAL button in order to interrupt the displays blinking, and set 35 in the SPRAY mode. Connect a 200ohms non-inductive load at the output of the equipment. Connect the probes of the oscilloscope to the signals indicated with DRIVRF and IPKISOG on the R.F. power generator board (Alsa code: 801465), and check the following waveforms:



Just in case the signals measured by the probes are different, it is necessary to change the position of the jumpers connections J1 and J4, placed on the R.F. power generator board (from horizontal to vertical position, and vice versa). At the end, put the R.F. power generator board in its right position.

CALIBRATION OF THE OUTPUT VOLTAGE PEAK FOR EACH MODE

Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:



Press the CAL button in order to interrupt the displays blinking.

Connect the high voltage probe to the selected output; in order to perform this calibration, it is necessary to use standard length cables connected to the output (even better if placed according to the Standard CEI EN

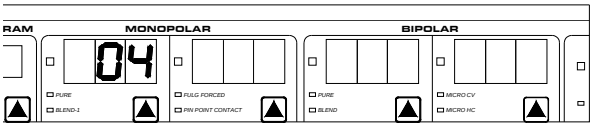
60601-2-2 – art. 6.8.3 Technical Description, point cc). By switching each single function on, and by operating on the buttons of power increase/decrease, it is possible to adjust the maximum value of the peak voltage. The values of these voltages are illustrated in the following Table:

Function	***Minimum Value***	***Maximum Value***
Monopolar Functions		
Pure	3300*	3600
Blend 1	3400	3650
Blend 2	7600	7700
Endo	1600	1900
Fulg Forced	4500	4800
PinPoint Contact	3400	3500
Soft	3400	3500
Spray	7500	7800
Bipolar Functions		
Pure	700	840
Blend	880	980
Micro	400	430
Macro	700	760

NOTE: Into the Table, the bipolar function of MICRO AUTO does not appear because it delivers the same voltage as the function MICRO.

CALIBRATION OF THE MAXIMUM POWER STAGE MOSFETS CURRENT FOR EACH FUNCTION

Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:



Press the CAL button in order to interrupt the displays blinking.

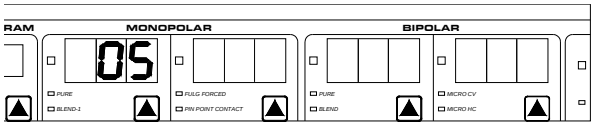
The calibration of the maximum current must be performed in each single function, by setting its maximum level. During the activation, operate on the buttons of power increase/decrease, in order to obtain the current values indicated in the following Table:

Monopolar Function	***50ohm***		***100ohm***		***150ohm***	
	min	max	min	max	min	max
Pure Cut	150	1.68	1.44	1.48	1.28	1.35
Blend 1	1.64	1.68	1.44	1.46	1.37	1.39
Blend 2	1.40	1.46	1.04	1.06		
Endo	1.35	1.49	1.19	1.28	1.11	1.21
Fulg Forced	1.48	1.55	1.11	1.15	0.92	0.95
PinPoint Contact	1.57	1.58	1.40	1.46	1.24	1.26
Monopolar Function	***50ohm***		***100ohm***		***150ohm***	
Soft	1.50	1.53	1.32	1.36	1.21	1.26
Spray	1.41	1.46	1.04	1.06	0.88	0.89

Bipolar Function	***10ohm***		***50ohm***		***100ohm***	
	min	max	min	max	min	max
Pure Cut	2.58	2.7	1.51	1.56	1.13	1.18
Blend	2.34	2.42	1.44	1.48	1.07	1.10
Micro	2.39	2.43	1.44	1.47	1.07	1.10
Macro	2.39	2.43	1.44	1.46	1.07	1.10

CONTROL OF THE H.F. LEAKAGE CURRENTS

Press the CAL button; when the displays blink, set the monopolar Cut section, as shown into the Figure:

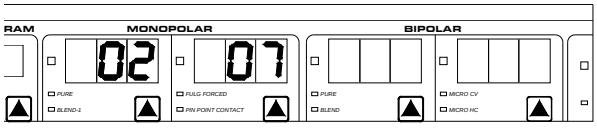


Press the CAL button in order to interrupt the displays blinking.

For each function of the equipment, it is necessary to adjust the limit of the R.F. leakage current. To do that, connect the equipment under test to a system for the measurement of the high frequency leakage currents; then, switch every single function and operate on the buttons of power increase/decrease, in order to bring the registered value within the limits established by the Standard (lower than 150mA for monopolar – less than 1% of maximum power for bipolar).

CALIBRATION OF THE OUTPUT CURRENT

Press the CAL button; when the displays blink, set the monopolar Cut and Coagulation section, as shown into the Figure:



Connect at the bipolar output a 200ohms non-inductive load with the current probe placed in series to the load. Activate the bipolar Pure Cut mode. The setting values are reported in the following table. During the switching on, operate on the buttons of power increase/decrease, in order to obtain the correspondent

values, as indicated in the column "*I-Out*"; if necessary, use the R1 pot placed on the main board (Alsa code 801463) in order to obtain the right H.F. current values on the load, as indicated in the column "*Current*":

Setting	*Current (A)*	*I-Out (Hex)*
31	0.22	24
47	0.32	34
71	0.50	54
9d	0.70	75

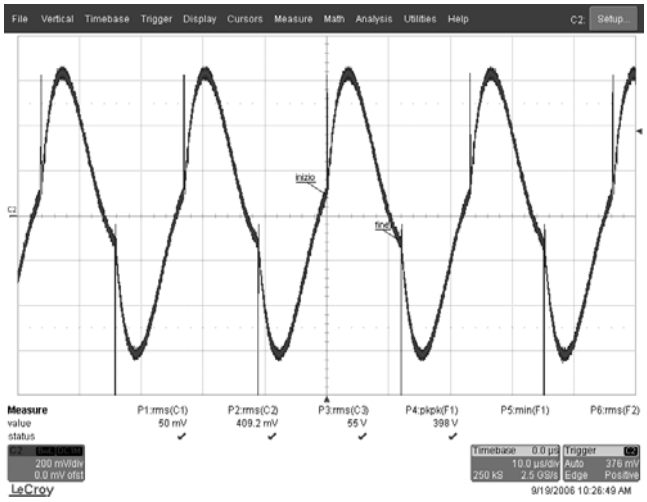
CALIBRATION OF THE NEUTRAL PLATE CIRCUIT

Connect the probe of the oscilloscope to the point indicated with TP2 on the board for the hand-switch control (Alsa code: 801462).

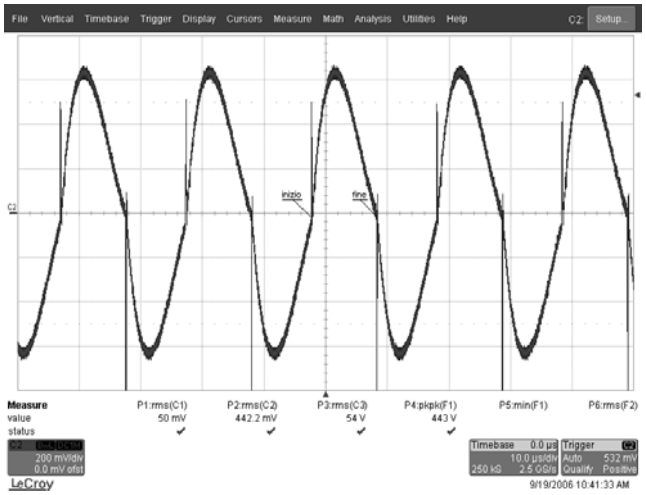
Connect a 250ohms resistor to the terminals of the neutral plate.

Calibrate the R27 pot in order to obtain a sinusoidal waveform, which is symmetric with respect to the horizontal axis. The following Figures show an example of right and wrong waveform:

Wrong



Right



<u>NOTE</u>: *The points indicated with "start" and "end" must coincide as much as possible with the X axis.*

At the end of the calibration, the frequency of the sinusoidal wave is about 100kHz; anyway, it must be said that the calibration establishes the exact "coupling point" of the neutral plate circuit, while the frequency represents its natural consequence.

The control circuit of the contact between the plate and the patient verifies the condition for an optimum contact as well as some intermediate levels, which are shown to the operator through the lights, placed into the section indicated on the panel with "N.P.". Notably, we can distinguish the following cases:

1) from 0 to 160 ohms: optimum contact. All the luminous signals that concern the neutral plate are switched off. The equipment can be used by setting any power, and the supply will correspond to what has been set;
2) from 160 to 190 ohms: the quality of the contact begin to decrease. The first luminous signal lights up in order to inform the operator on the current status of the contact;
3) from 190 to 250 ohms: the quality of the contact worsens considerably. Also the second luminous signal lights up in order to capture the attention of the operator. Besides this threshold, the

equipment will automatically reduce the output power delivered to 50%, in order to avoid all risks of burns due to a bad contact between the plate and the patient;

4) from 250 to 380 ohms: the quality of the contact does not allow the delivery of the electrosurgical unit maximum power anymore. Besides the luminous signals mentioned above, there is also here a blinking red light, which tells the operator that something is going wrong;
5) more than 380 ohms: the contact between the plate and the patient is definitely not enough. The red light remains lit; the equipment gives an intermittent acoustic alarm signal, and on the display the message no nP appears. The equipment interrupts the output power delivery until the quality of the contact is re-settled again.

Set the R40 pot placed on the board for the Handle Control (Alsa code: 801462), by using a simulation potentiometer connected to the terminals of the neutral plate, in order to allow the unit functioning as described above.

SECTION FOR THE ARGON GAS COAGULATOR

Connect the cylinder at the rear input, and adjust the pressure until the light for the absence of gas is switched off. The recommended input pressure is 2.5-3 bar. The activation of this section is possible only when the input pressure is considered adequate for the use. By the contrary, it is not possible when:

- the input pressure is not sufficient at all (the red light placed under the setting bar for the output flow lights up);
- the input pressure is too high (the equipment shows the alarm signal HI Pr5).

By pressing the button indicated with:

the coagulator section is activated; at this point, the unit performs a short selftest for this specific section. If no anomaly is present, the equipment is ready for the use of the Argon gas; the operator must set the desired flow level, by using the increase/decrease buttons. At the same time, the luminous signal for the activation of the SPRAY coagulation and the one for the radiofrequency output to be used start blinking. At the switching on, the indication will show exactly the flow supplied, and not simply the level that had been set.

In order to verify this action, first of all it is necessary to test the status of the control board. To do that, switch the equipment on, and on the board with Alsa code 801468 (Argon Management board) verify what follows:

- Vref on J7: the multimeter must indicate 10V (± 0.1V); if not, set the R40 pot of the board with Alsa code: 801468;
- the offset of the input pressure sensor on J2: the multimeter must indicate 0V (± 0.01V); if not, set the R26 pot;
- the offset of the input pressure sensor on J3: the multimeter must indicate 0V (± 0.01V); if not, set the R39 pot.

The control of the Argon gas supply is possible by using a flowmeter with full scale of about 20lt/min, and a manometer with full scale of about 3bar.

By connecting the Argon supply handle to the output of the unit, check the correspondence between the flow set and the flow supplied. If necessary, set the screw regulator placed at the output of the pressure reducer,

which is inside the equipment. The adjustment can have a tolerance of 20%. Verify that the output pressure does not exceed 2 bars. The nominal value is around 1.5 bars.

LIST OF THE ERROR CODES

In order to facilitate the technical assistance, an error code for each anomaly is memorized inside the E^2PROM; thanks to a particular procedure, which can be selectable exclusively in the *calibration* mode, it is possible to visualize the last 32 errors that occurred to the unit. It is also possible to cancel this list, in order to avoid repeated checks when the equipment is switched on again.

HOW READING THE LIST OF THE ERRORS

To visualize the list of the errors, it is necessary to enter into the *calibration* mode, by pressing at the same time the three buttons: CAL, selection of the bipolar coagulation mode, and increase of the monopolar coagulation power. After the appearance of the signal message about the calibration status on the display (CAL on), press the CAL button again, and, with the blinking displays, select 0d into the monopolar Cut section and a number from 00 to 20 (from 0 to 20 in the hexadecimal scale corresponds to 32 positions in the decimal scale) into the monopolar coagulation section (the latter represents the number of the memorized error; the last error that has occurred is indicated by the signal on the Cut display that will be FF). By pressing the monopolar Cut activation pedal-switch, the error code about the position selected before with the monopolar Coagulation section will appear.

HOW DELETING THE LIST OF THE MEMORIZED ERRORS

Always in the *calibration* mode, press the CAL button and, with the blinking displays, select 0E into the monopolar Cut section; by pressing the monopolar Cut activation pedal-switch, the display will show the code E2P CLr, to inform the operator that the memories for the errors have been deleted. By repeating the reading sequence of the errors (see the previous paragraph), all the memories will contain FF.

Type of Error	***Code***	***Code memorized in E²PROM (in CAL mode, select "Cd")[1]***
Errors of setting or on the activation circuits		
Anomaly on the neutral plate	no nP	-
Error registered into the neutral plate circuit	Err nPC	81
Error on the control circuit of the plate/tissue contact	Err 53	35
Error on the hand-switch activation circuit at the switching on	Err Hnd	82
Error on the pedal-switch activation circuit at the switching on	Err PEd	83
Simultaneous activation of two devices not allowed	USr Act	85
Error on the keyboard registered during the self test	Err 14	0E
Errors on the Argon gas section		
Input pressure of the Argon gas too high	HI Pr5	88
Error in the Argon gas section during the Argon selection	Err 30	1E
Loss of Argon gas due to an internal leakage	Err 31	1F
Pressure of the Argon gas not sufficient during the activation	Err 29	1d
Activation of the Argon input placed backside during the switching on	Err Em	84
Errors on the Master microcontroller		
RAM memory	Err 32	20
FLASH memory	Err 34	22
Complemented variables of the system	Err 35	23
Errors on the power supply section		
Watchdog Timer	Err 33	21
Error +5V	Err 36	24
Error of the R.F. power supply with lower setting value	Err 37	25
Error of the R.F. power supply with higher setting value	Err 38	26
R.F. power supply higher than the pre-set value during the activation phase	Err 97	61
Errors on the serial communication		
Error on the serial communication peripherals placed on the main board (Alsa code: 801463)	2 slow acoustic repetitions and then rapid intermittence	3d
Error on the serial communication peripheral placed on the power supply board (Alsa code: 801471)	3 slow acoustic repetitions and then rapid intermittence	3E

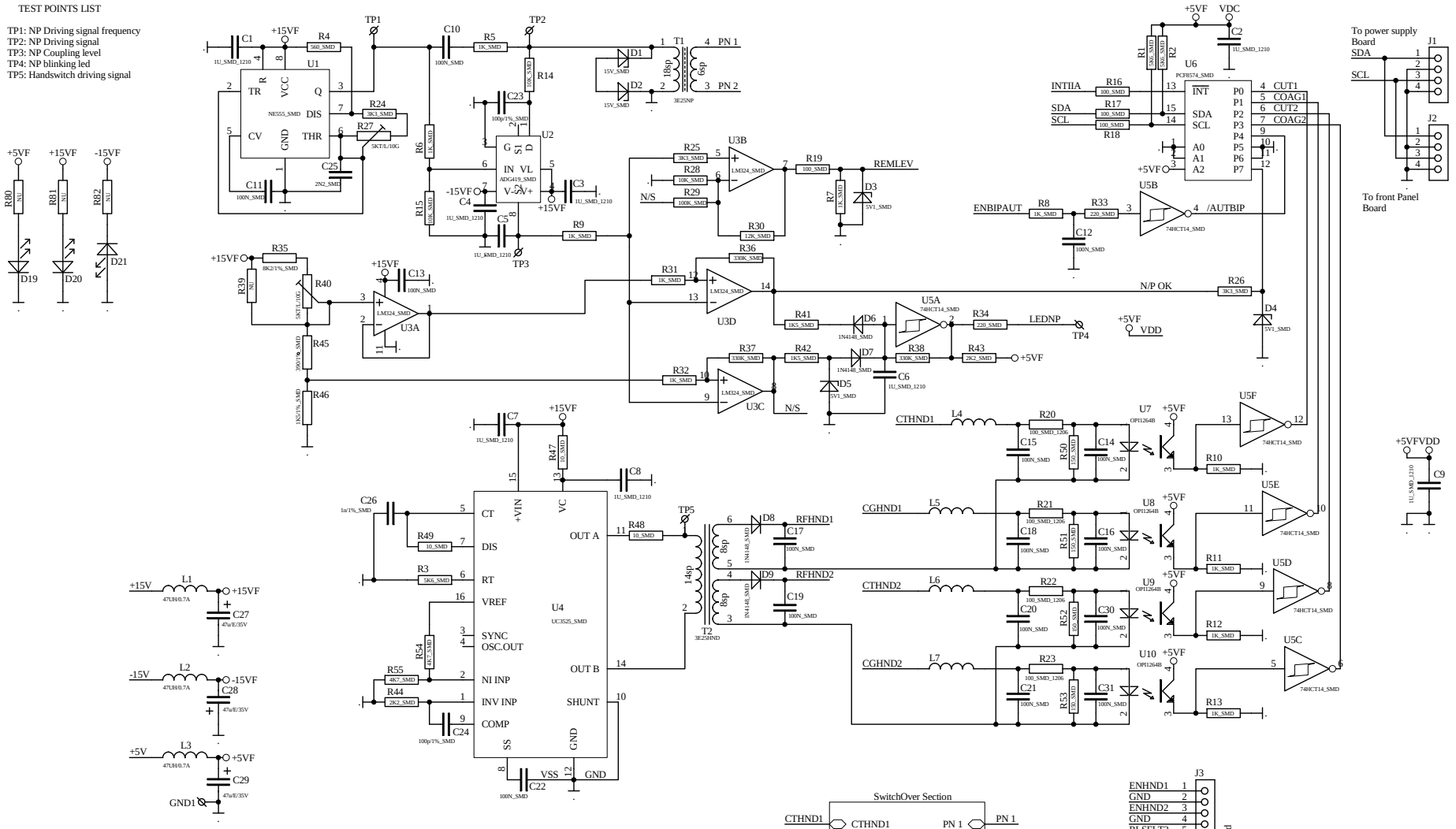
[1] According to the numerical indication of error which appears on the display when an anomaly occurs, the hexadecimal value correspondent to one of the Error Codes shown in the column *Code* is memorized inside the E²PROM.

Type of Error	***Code***	***Code memorized in E^2PROM (in CAL mode, select "Cd")[2]***
Error on the serial communication peripheral placed on the hand-switch control board (Alsa code: 801462)	4 slow acoustic repetitions and then rapid intermittence	3F
Error in the communication with the E^2PROM	5 slow acoustic repetitions and then rapid intermittence	40
Absence of connection I^2CBUS (during the use)	6 slow acoustic repetitions and then rapid intermittence	43
Non Master-Slave connection (during the self test)	7 slow acoustic repetitions and then rapid intermittence	41
Error on the Slave microcontroller	8 slow acoustic repetitions and then rapid intermittence	44
Errors on the Slave microcontroller		
Error on a Slave microcontroller internal peripheral	Err 60	3C
Errors on the R.F. power section		
Error in the internal dummy load used during the self test	Err 39	27
Error in the R.F. output power measurement circuit (with lower setting value	Err 51	33
Error in the R.F. output power measurement circuit (with higher setting value)	Err 52	34
Error in the bipolar power circuit with lower setting value	Err 43	2b
Error in the bipolar power circuit (with higher setting value)	Err 42	2A
Error of functioning in the monopolar circuit in the PURE mode	Err 40	28
Error of functioning in the monopolar circuit in the SPRAY mode	Err 41	29
Error on the modulation signal of the function BLEND-1	Err 44	2C
Error on the modulation signal of the function FULG FORCED	Err 45	2d
Error on the modulation signal of the function SPRAY	Err 46	2E
Error in the reading of the output peak voltage (with lower setting value	Err 47	2F
Error in the reading of the output peak voltage (with higher setting value)	Err 48	30
Error in the reading of the output peak current (with lower setting value	Err 49	31
Error in the reading of the output peak current (with higher setting value)	Err 50	32
HF output power higher than expected	Err 98	62
Errors on the thermal protections		
Thermal protection of the power supply unit	Err 27	1b
Thermal protection of the R.F. power section	Err 28	1C

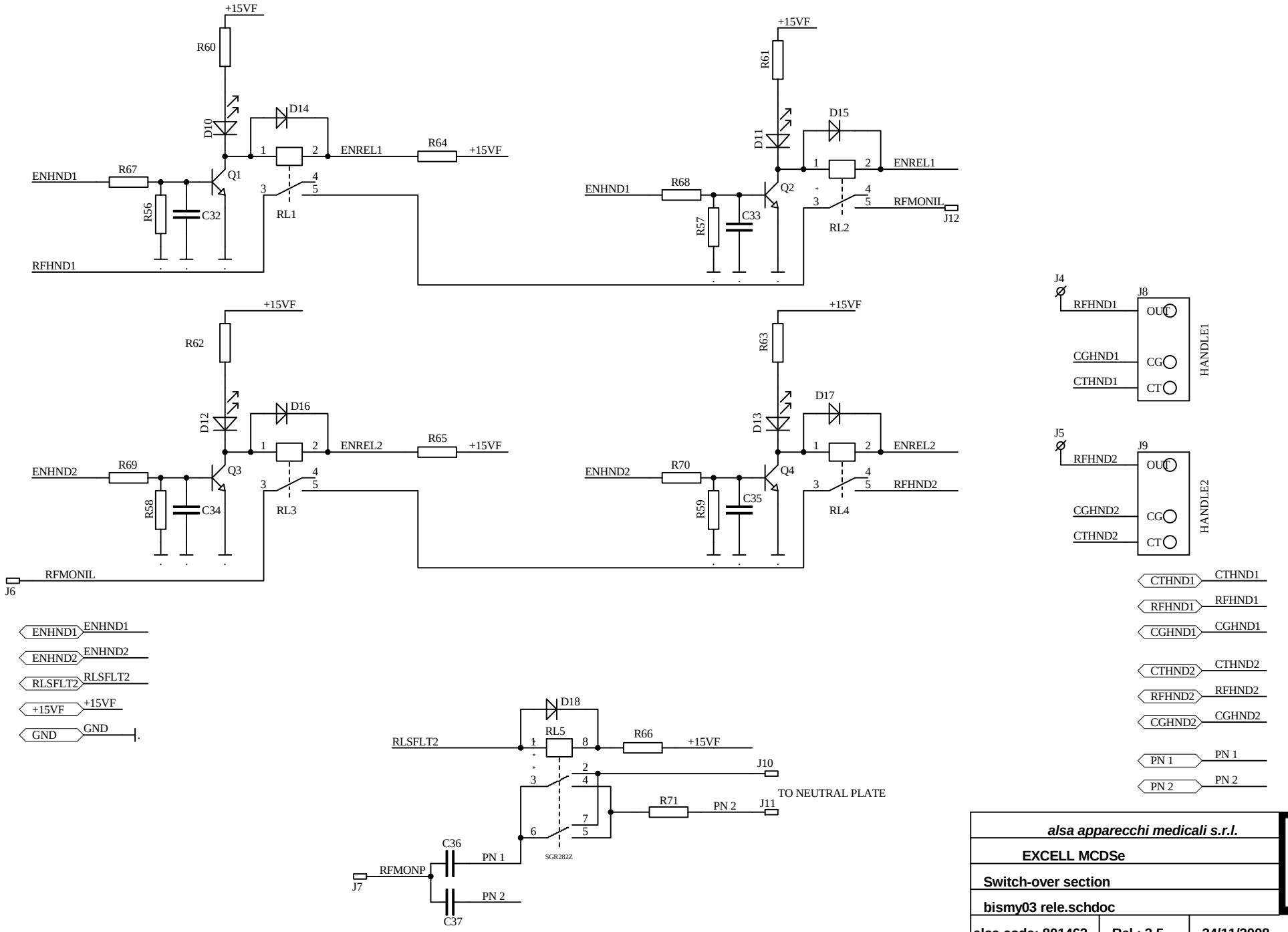
[2] According to the numerical indication of error which appears on the display when an anomaly occurs, the hexadecimal value correspondent to one of the Error Codes shown in the column *Code* is memorized inside the E^2PROM.

TEST POINTS LIST

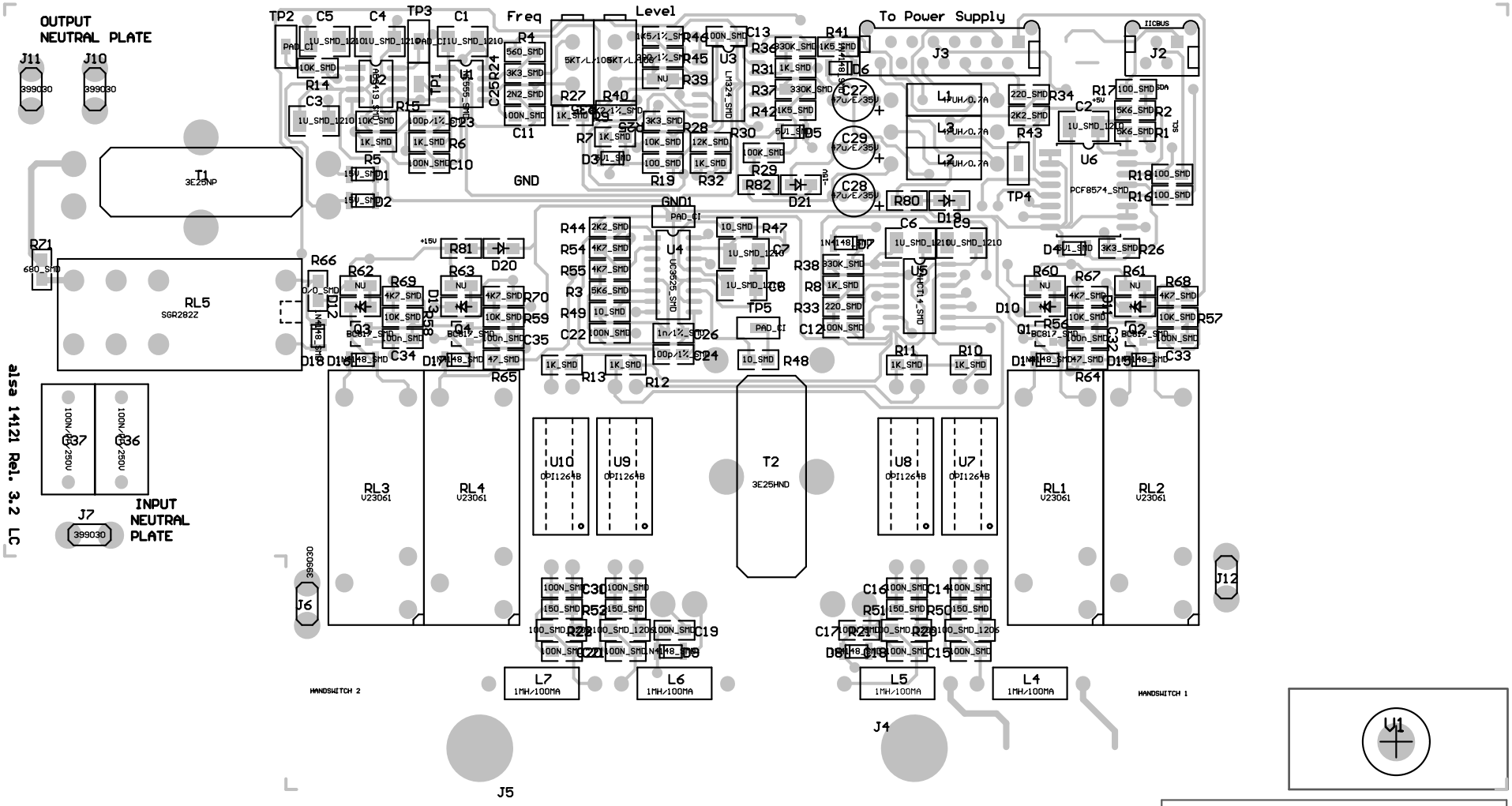
TP1: NP Driving signal frequency
TP2: NP Driving signal
TP3: NP Coupling level
TP4: NP blinking led
TP5: Handswitch driving signal



alsa apparecchi medicali s.r.l.			alsa bologna
EXCELL MCDSe			
Double Handswitch & NP control board			
BisMy03HandleSwitch.Schdoc			
alsa code: 801462	Rel.: 3.5	24/11/2008	
Drawn by:	Approval:		



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Switch-over section		
bismy03 rele.schdoc		
alsa code: 801462	**Rel.: 3.5**	**24/11/2008**
Drawn by:	**Approval:**	



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Double handswitch & NP control board		
alsa code: 801462	Rev: 3.5	24/11/2008
Drawn by:	Approval:	

File name: Double handswitch & NP control board alsa code: [801462] Rev.: [3.5]
Date: Nov 24, 2008

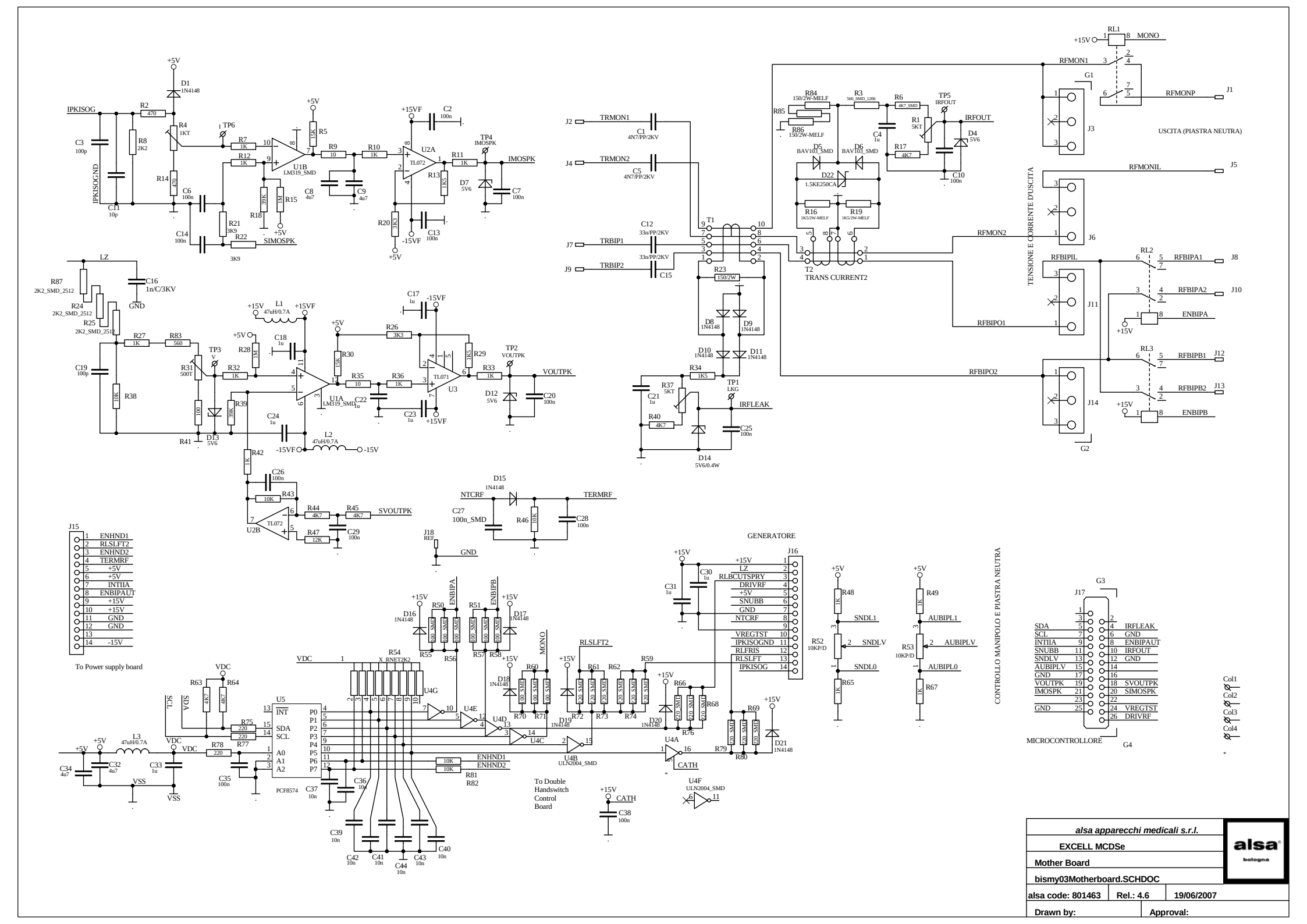
Ref.	Part Type	Description	alsa code
R1	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R2	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R3	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R4	560_SMD	STANDARD CHIP RESISTOR	430500/S
R5	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R6	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R7	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R8	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R9	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R10	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R11	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R12	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R13	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R14	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R15	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R16	100_SMD	STANDARD CHIP RESISTOR	430496/S
R17	100_SMD	STANDARD CHIP RESISTOR	430496/S
R18	100_SMD	STANDARD CHIP RESISTOR	430496/S
R19	100_SMD	STANDARD CHIP RESISTOR	430496/S
R20	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R21	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R22	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R23	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R24	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R25	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R26	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R27	5KT/L/10G	PRESET POTENTIOMETER MULTITURN	403123
R28	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R29	100K_SMD	STANDARD CHIP RESISTOR	430528/S
R30	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R31	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R32	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R33	220_SMD	STANDARD CHIP RESISTOR	430497/S
R34	220_SMD	STANDARD CHIP RESISTOR	430497/S
R35	8K2/1%_SMD	1% PRECISION CHIP RESISTOR	430539/S
R36	330K_SMD	STANDARD CHIP RESISTOR	430537/S
R37	330K_SMD	STANDARD CHIP RESISTOR	430537/S
R38	330K_SMD	STANDARD CHIP RESISTOR	430537/S
R39	NU	NOT USED	------
R40	5KT/L/10G	PRESET POTENTIOMETER MULTITURN	403123
R41	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R42	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R43	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R44	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R45	390/1%_SMD	1% PRECISION CHIP RESISTOR	430538/S
R46	1K5/1%_SMD	1% PRECISION CHIP RESISTOR	430504/S
R47	10_SMD	STANDARD CHIP RESISTOR	430493/S
R48	10_SMD	STANDARD CHIP RESISTOR	430493/S
R49	10_SMD	STANDARD CHIP RESISTOR	430493/S
R50	150_SMD	STANDARD CHIP RESISTOR	430531/S
R51	150_SMD	STANDARD CHIP RESISTOR	430531/S
R52	150_SMD	STANDARD CHIP RESISTOR	430531/S
R53	150_SMD	STANDARD CHIP RESISTOR	430531/S
R54	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R55	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R56	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R57	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R58	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R59	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R60	NU	NOT USED	------
R61	NU	NOT USED	------
R62	NU	NOT USED	------
R63	NU	NOT USED	------
R64	47_SMD	STANDARD CHIP RESISTOR	430495/S
R65	47_SMD	STANDARD CHIP RESISTOR	430495/S
R66	0/0_SMD	STANDARD CHIP RESISTOR 0 OHMS	430579/S
R67	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R68	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R69	4K7_SMD	STANDARD CHIP RESISTOR	430511/S

File name: Double handswitch & NP control board alsa code: [801462] Rev.: [3.5]
Date: Nov 24, 2008

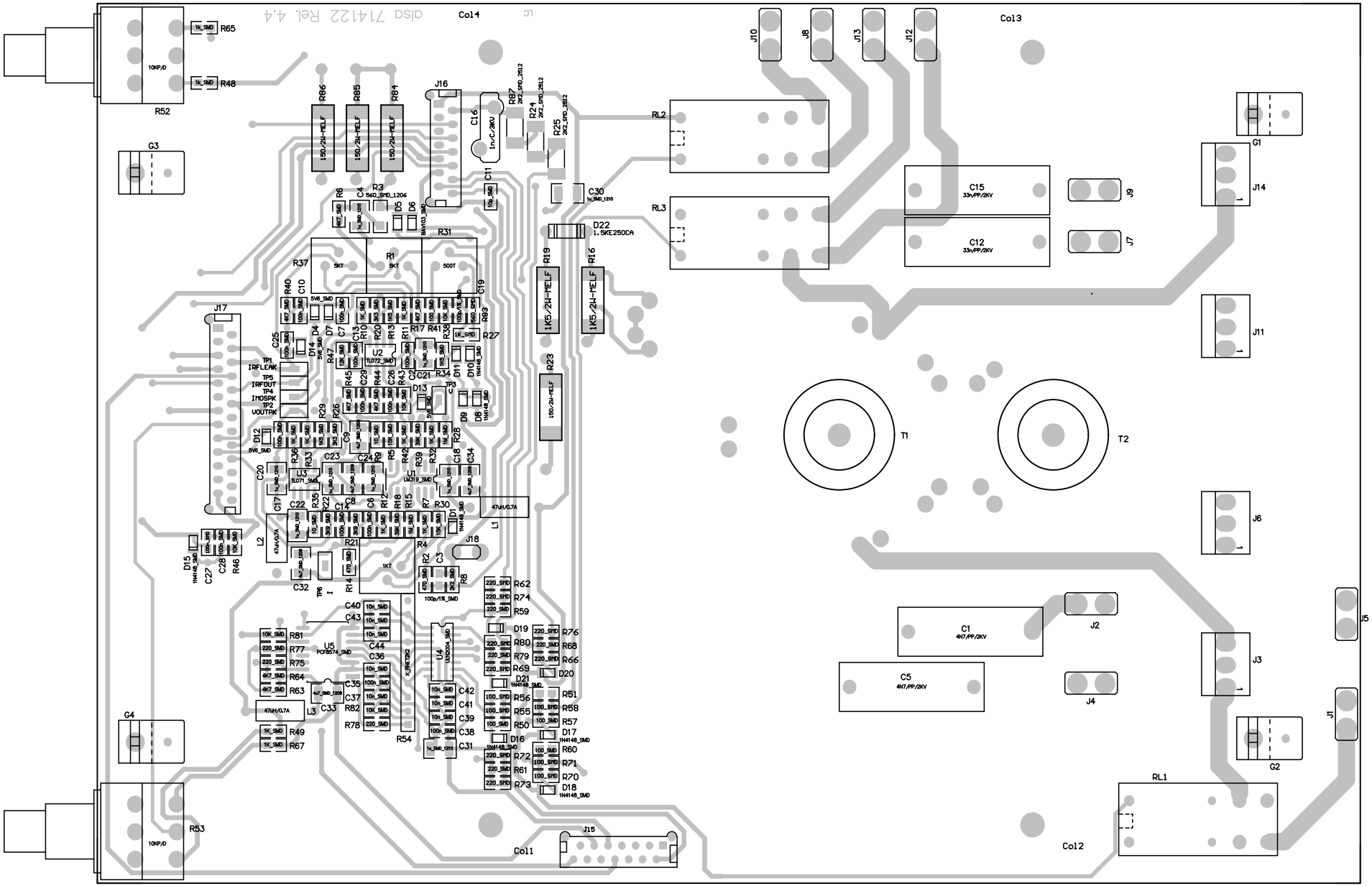
Ref.	Part Type	Description	alsa code
R70	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R71	680_SMD	STANDARD CHIP RESISTOR	430501/S
R80	NU	NOT USED	------
R81	NU	NOT USED	------
R82	NU	NOT USED	------
C1	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C2	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C3	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C4	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C5	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C6	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C7	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C8	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C9	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C10	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C11	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C12	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C13	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C14	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C15	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C16	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C17	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C18	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C19	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C20	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C21	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C22	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C23	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C24	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C25	2N2_SMD	CERAMIC CHIP CAPACITOR	400325/S
C26	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C27	47u/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C28	47u/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C29	47u/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C30	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C31	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C32	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C34	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C35	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C36	100N/PP/250V	POLYPROPYLENE CAPACITOR	400321
C37	100N/PP/250V	POLYPROPYLENE CAPACITOR	400321
D1	15V_SMD	SMD ZENER DIODE	420104/S
D2	15V_SMD	SMD ZENER DIODE	420104/S
D3	5V1_SMD	SMD ZENER DIODE	420101/S
D4	5V1_SMD	SMD ZENER DIODE	420101/S
D5	5V1_SMD	SMD ZENER DIODE	420101/S
D6	1N4148_SMD	SMD DIODE	420098/S
D7	1N4148_SMD	SMD DIODE	420098/S
D8	1N4148_SMD	SMD DIODE	420098/S
D9	1N4148_SMD	SMD DIODE	420098/S
D10	NU	NOT USED	------
D11	NU	NOT USED	------
D12	NU	NOT USED	------
D13	NU	NOT USED	------
D14	1N4148_SMD	SMD DIODE	420098/S
D15	1N4148_SMD	SMD DIODE	420098/S
D16	1N4148_SMD	SMD DIODE	420098/S
D17	1N4148_SMD	SMD DIODE	420098/S
D18	1N4148_SMD	SMD DIODE	420098/S
Q1	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q2	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q3	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q4	BC817_SMD	SMD NPN TRANSISTOR	427089/S
U1	NE555_SMD	SMD TIMER NE555	482135
U2	ADG419_SMD	SMD SINGLE ANALOG SWITCH	482116
U3	LM324_SMD	SMD QUAD OP AMP LM324	482127
U4	UC3525_SMD	SMD PWM UC3525	482136
U5	74HCT14_SMD	SMD HEX INVERTERS WITH SCHMITT TRIGGER	482106

File name: Double handswitch & NP control board alsa code: [801462] Rev.: [3.5]
Date: Nov 24, 2008

Ref.	Part Type	Description	alsa code
U6	PCF8574_SMD	SMD II_CBUS I/O EXPANDER	482128
U7	OPI1264B	OPTOCOUPLER	420110
U8	OPI1264B	OPTOCOUPLER	420110
U9	OPI1264B	OPTOCOUPLER	420110
U10	OPI1264B	OPTOCOUPLER	420110
L1	47UH/0.7A	INDUCTOR	422009
L2	47UH/0.7A	INDUCTOR	422009
L3	47UH/0.7A	INDUCTOR	422009
L4	1MH/100MA	INDUCTOR	422005
L5	1MH/100MA	INDUCTOR	422005
L6	1MH/100MA	INDUCTOR	422005
L7	1MH/100MA	INDUCTOR	422005
T1	3E25NP	NEUTRAL PLATE CIRCUIT TRANSFORMER	714181
T2	3E25HND	TRANSFORMER FOR HANDLE ACTIVATION	714180
RL1	V23061	1 CHANGEOVER RELAY	404044
RL2	V23061	1 CHANGEOVER RELAY	404044
RL3	V23061	1 CHANGEOVER RELAY	404044
RL4	V23061	1 CHANGEOVER RELAY	404044
RL5	SGR282Z	2 CHANGEOVER RELAY	404048
J1	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J2	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J3	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J6	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J7	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J10	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J11	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J12	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030



alsa apparecchi medicali s.r.l.		alsa bologna
EXCELL MCDSe		
Mother Board		
bismy03Motherboard.SCHDOC		
alsa code: 801463	Rel.: 4.6	19/06/2007
Drawn by:	Approval:	



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
R:F. Mother board		
alsa code: 801463	Rev:4.6	19/06/2007
Drawn by:	Approval:	

File name: Mother board alsa code: [801463] Rev.: [4.6]
Date: June 18, 2007

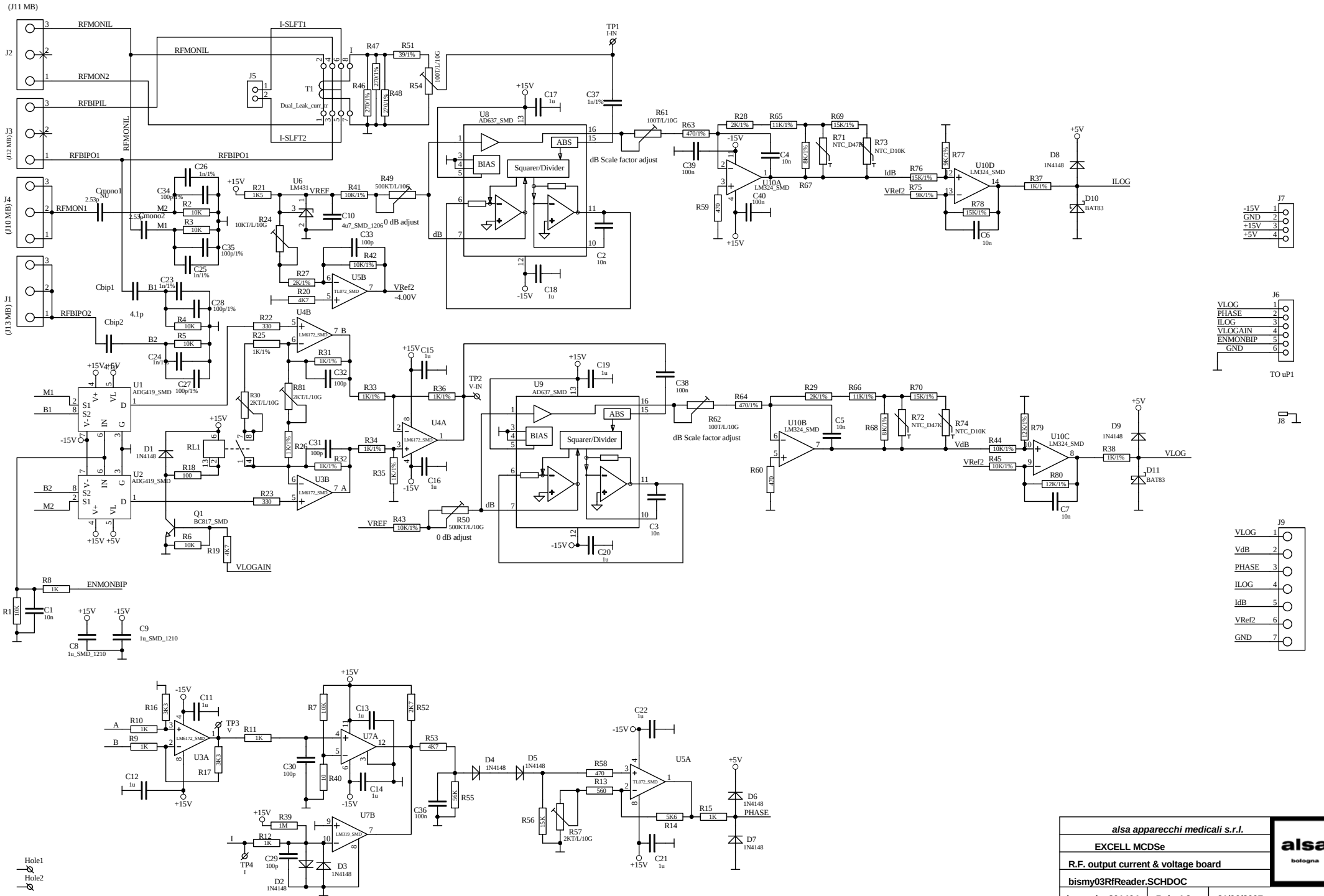
Ref	Part Type	Description	alsa code
R1	5KT	PRESET POTENTIOMETER CERMET	403052
R2	470_SMD	STANDARD CHIP RESISTOR	430499/S
R3	560_SMD_1206	STANDARD CHIP RESISTOR	430573/S
R4	1KT	PRESET POTENTIOMETER CERMET	403063
R5	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R6	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R7	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R8	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R9	10_SMD	STANDARD CHIP RESISTOR	430493/S
R10	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R11	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R12	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R13	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R14	470_SMD	STANDARD CHIP RESISTOR	430499/S
R15	1M_SMD	STANDARD CHIP RESISTOR	430524/S
R16	1K5/2W-MELF	2W CHIP RESISTOR	430576/S
R17	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R18	39K_SMD	STANDARD CHIP RESISTOR	430535/S
R19	1K5/2W-MELF	2W CHIP RESISTOR	430576/S
R20	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R21	3K9_SMD	STANDARD CHIP RESISTOR	430550/S
R22	3K9_SMD	STANDARD CHIP RESISTOR	430550/S
R23	150/2W-MELF	2W CHIP RESISTOR	430575/S
R24	2K2_SMD_2512	1W CHIP RESISTOR	430570/S
R25	2K2_SMD_2512	1W CHIP RESISTOR	430570/S
R26	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R27	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R28	1M_SMD	STANDARD CHIP RESISTOR	430524/S
R29	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R30	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R31	500T	PRESET POTENTIOMETER CERMET	403080
R32	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R33	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R34	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R35	10_SMD	STANDARD CHIP RESISTOR	430493/S
R36	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R37	5KT	PRESET POTENTIOMETER CERMET	403052
R38	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R39	39K_SMD	STANDARD CHIP RESISTOR	430535/S
R40	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R41	100_SMD	STANDARD CHIP RESISTOR	430496/S
R42	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R43	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R44	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R45	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R46	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R47	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R48	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R49	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R50	100_SMD	STANDARD CHIP RESISTOR	430496/S
R51	100_SMD	STANDARD CHIP RESISTOR	430496/S
R52	10KP/D	DUAL POTENTIOMETER	403099
R53	10KP/D	DUAL POTENTIOMETER	403099
R54	X_RNET2K2	RESISTOR NETWORK 2K2	430485
R55	100_SMD	STANDARD CHIP RESISTOR	430496/S
R56	100_SMD	STANDARD CHIP RESISTOR	430496/S
R57	100_SMD	STANDARD CHIP RESISTOR	430496/S
R58	100_SMD	STANDARD CHIP RESISTOR	430496/S
R59	220_SMD	STANDARD CHIP RESISTOR	430497/S
R60	100_SMD	STANDARD CHIP RESISTOR	430496/S
R61	220_SMD	STANDARD CHIP RESISTOR	430497/S
R62	220_SMD	STANDARD CHIP RESISTOR	430497/S
R63	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R64	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R65	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R66	220_SMD	STANDARD CHIP RESISTOR	430497/S
R67	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R68	220_SMD	STANDARD CHIP RESISTOR	430497/S
R69	220_SMD	STANDARD CHIP RESISTOR	430497/S

File name: Mother board alsa code: [801463] Rev.: [4.6]
Date: June 18, 2007

Ref	Part Type	Description	alsa code
R70	100_SMD	STANDARD CHIP RESISTOR	430496/S
R71	100_SMD	STANDARD CHIP RESISTOR	430496/S
R72	220_SMD	STANDARD CHIP RESISTOR	430497/S
R73	220_SMD	STANDARD CHIP RESISTOR	430497/S
R74	220_SMD	STANDARD CHIP RESISTOR	430497/S
R75	220_SMD	STANDARD CHIP RESISTOR	430497/S
R76	220_SMD	STANDARD CHIP RESISTOR	430497/S
R77	220_SMD	STANDARD CHIP RESISTOR	430497/S
R78	220_SMD	STANDARD CHIP RESISTOR	430497/S
R79	220_SMD	STANDARD CHIP RESISTOR	430497/S
R80	220_SMD	STANDARD CHIP RESISTOR	430497/S
R81	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R82	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R83	560_SMD	STANDARD CHIP RESISTOR	430500/S
R84	150/2W-MELF	2W CHIP RESISTOR	430575/S
R85	150/2W-MELF	2W CHIP RESISTOR	430575/S
R86	150/2W-MELF	2W CHIP RESISTOR	430575/S
R87	2K2_SMD_2512	1W CHIP RESISTOR	430570/S
C1	4N7/PP/2KV	POLYPROPYLENE CAPACITOR	400306
C2	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C4	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C5	4N7/PP/2KV	POLYPROPYLENE CAPACITOR	400306
C6	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C7	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C8	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C9	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C10	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C11	10p_SMD	CERAMIC CHIP CAPACITOR	400329/S
C12	33n/PP/2KV	POLYPROPYLENE CAPACITOR	400336
C13	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C14	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C12	33n/PP/2KV	POLYPROPYLENE CAPACITOR	400336
C16	1n/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400224
C17	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C18	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C19	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C20	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C21	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C22	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C23	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C24	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C25	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C26	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C27	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C28	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C29	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C30	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C31	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C32	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C33	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C34	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C35	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C36	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C37	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C38	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C39	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C40	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C41	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C42	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C43	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C44	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
D1	1N4148_SMD	SMD DIODE	420098/S
D4	5V6_SMD	SMD ZENER DIODE	420102/S
D5	BAV103_SMD	SMD 250V DIODE	420116
D6	BAV103_SMD	SMD 250V DIODE	420116
D7	5V6_SMD	SMD ZENER DIODE	420102/S
D8	1N4148_SMD	SMD DIODE	420098/S
D9	1N4148_SMD	SMD DIODE	420098/S

File name: Mother board alsa code: [801463] Rev.: [4.6]
Date: June 18, 2007

Ref	Part Type	Description	alsa code
D10	1N4148_SMD	SMD DIODE	420098/S
D11	1N4148_SMD	SMD DIODE	420098/S
D12	5V6_SMD	SMD ZENER DIODE	420102/S
D13	5V6_SMD	SMD ZENER DIODE	420102/S
D14	5V6_SMD	SMD ZENER DIODE	420102/S
D15	1N4148_SMD	SMD DIODE	420098/S
D16	1N4148_SMD	SMD DIODE	420098/S
D17	1N4148_SMD	SMD DIODE	420098/S
D18	1N4148_SMD	SMD DIODE	420098/S
D19	1N4148_SMD	SMD DIODE	420098/S
D20	1N4148_SMD	SMD DIODE	420098/S
D21	1N4148_SMD	SMD DIODE	420098/S
D22	1.5KE250CA	TRANSIL DIODE	420120
U1	LM319_SMD	SMD HIGH SPEED DUAL COMPARATOR	482132
U2	TL072_SMD	SMD OP.AMP. TL072	482125
U3	TL071_SMD	SMD OP.AMP. TL071	482131
U4	ULN2004_SMD	SMD BUFFER ULN2004	482133
U5	PCF8574_SMD	SMD II_CBUS I/O EXPANDER	482128
L1	47uH/0.7A	INDUCTOR	422009
L2	47uH/0.7A	INDUCTOR	422009
L3	47uH/0.7A	INDUCTOR	422009
T1	DUAL_LEAK_TR	DIFFERENTIAL CURRENT TRANSFORMER	714177
T2	TRANS CURR	OUTPUT CURRENT TRANSFORMER	714178
RL1	SGR282Z	2 CHANGEOVER RELAY	404048
RL2	SGR282Z	2 CHANGEOVER RELAY	404048
RL3	SGR282Z	2 CHANGEOVER RELAY	404048
J1	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J2	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J3	PAND_3P	3 POLES PCB CONNECTOR PANDUIT MALE	384036
J4	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J5	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J6	PAND_3P	3 POLES PCB CONNECTOR PANDUIT MALE	384036
J7	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J8	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J9	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J10	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J11	PAND_3P	3 POLES PCB CONNECTOR PANDUIT MALE	384036
J12	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J13	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J14	PAND_3P	3 POLES PCB CONNECTOR PANDUIT MALE	384036
J15	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J16	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J17	PICO_26	26 POLES PICOFLEX CONN. MALE P.C.B.	384044
J18	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030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J2
J3
(J12 MB)
J4
(J10 MB)
J1
(J13 MB)
RFMONIL
RFMON2
RFBIPIL
RFBIPO1
RFBIPO2
RFMON1
I-SLFT1
I-SLFT2
T1
Dual_Leak_curr_tr
J5
R47
R51
R46
R48
R54
TP1
I-IN
U8
AD637_SMD
ABS
BIAS
Squarer/Divider
C17
C37
R61
R63
C39
R28
R65
R69
R71
R73
R67
C4
C40
R59
U10A
U10D
R76
R75
R77
R78
C6
R37
D8
D10
ILOG
IdB
VRef2
J7
-15V
GND
+15V
+5V
J6
VLOG
PHASE
ILOG
VLOGAIN
ENMONBIP
GND
TO uP1
J8
C26
C34
C35
C25
R2
R3
Cmono1
Cmono2
C10
R21
R24
R41
R49
R42
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R27
R20
U5B
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C18
C2
C23
C28
R4
R5
C24
C27
Cbip1
Cbip2
4.1p
U4B
R22
R25
R31
C32
R81
R30
R26
C31
R32
R33
R36
R34
R35
U4A
C15
C16
TP2
V-IN
U9
C19
C38
R62
R64
R29
R66
R70
R72
R74
R68
R60
U10B
C5
R44
R45
R79
R80
C7
R38
D9
D11
VLOG
VdB
U1
U2
ADG419_SMD
S1
S2
D
IN
RL1
R18
D1
Q1
BC817_SMD
R6
R19
VLOGAIN
U3B
R23
B
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R8
ENMONBIP
R1
C1
C9
C8
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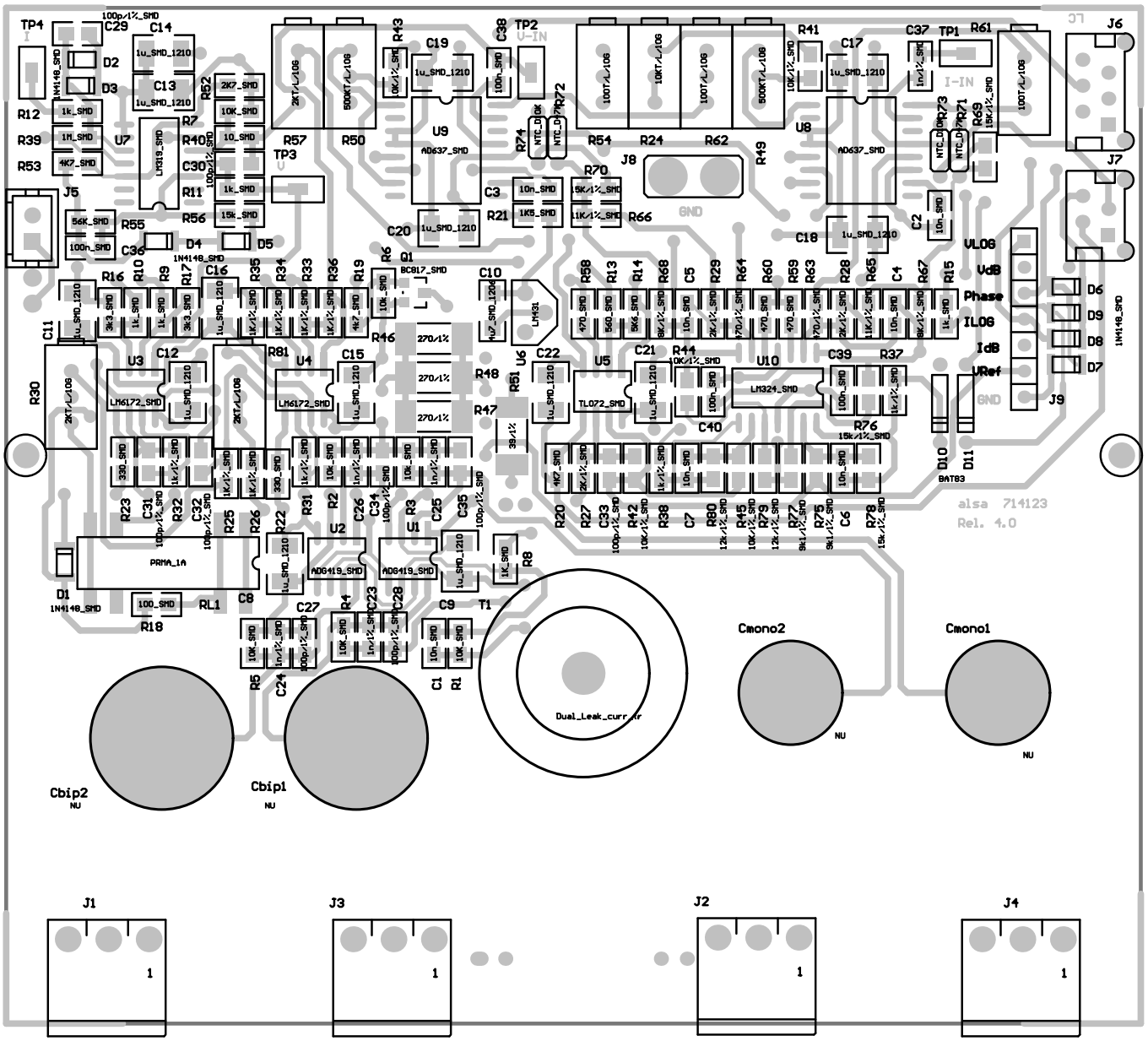
J9
VLOG
VdB
PHASE
ILOG
IdB
VRef2
GND
R16
R10
R9
R17
U3A
C11
C12
TP3
V
R11
R7
C13
U7A
C30
R40
C14
R52
R53
C36
R55
D4
D5
R58
R13
R56
R57
U5A
C22
C21
R15
R14
D6
PHASE
D7
R39
R12
C29
TP4
I
U7B
D2
D3
Hole1
Hole2
alsa apparecchi medicali s.r.l.
EXCELL MCDSe
R.F. output current & voltage board
bismy03RfReader.SCHDOC
alsa code: 801464
Rel.: 4.2
21/06/2007
Drawn by:
Approval:



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
R.F.output current & voltage board		
alsa code: 801464	Rev: 4.2	21/06/2007
Drawn by:	Approval:	

File name: RF output current & voltage board alsa code: [801464] Rev.: [4.2]
Date: June 21, 2007

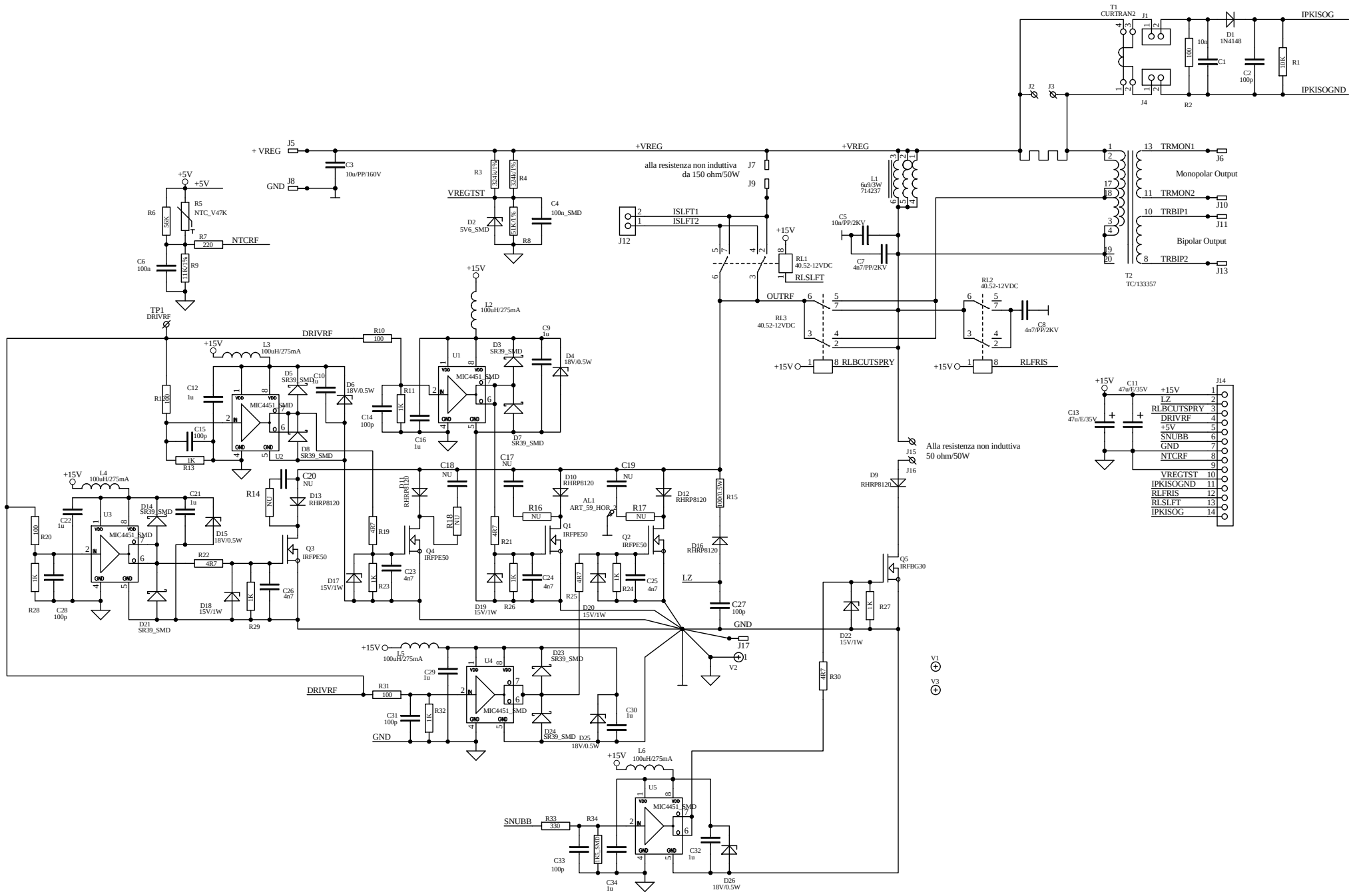
Ref	Part Type	Description	alsa code
R1	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R2	10k_SMD	STANDARD CHIP RESISTOR	430513/S
R3	10k_SMD	STANDARD CHIP RESISTOR	430513/S
R4	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R5	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R6	10k_SMD	STANDARD CHIP RESISTOR	430513/S
R7	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R8	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R9	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R10	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R11	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R12	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R13	560_SMD	STANDARD CHIP RESISTOR	430500/S
R14	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R15	1k_SMD	STANDARD CHIP RESISTOR	430502/S
R16	3k3_SMD	STANDARD CHIP RESISTOR	430508/S
R17	3k3_SMD	STANDARD CHIP RESISTOR	430508/S
R18	100_SMD	STANDARD CHIP RESISTOR	430496/S
R19	4k7_SMD	STANDARD CHIP RESISTOR	430511/S
R20	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R21	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R22	330_SMD	STANDARD CHIP RESISTOR	430498/S
R23	330_SMD	STANDARD CHIP RESISTOR	430498/S
R24	10KT/L/10G	PRESET POTENTIOMETER MULTITURN	403121
R25	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R26	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R27	2K/1%_SMD	1% PRECISION CHIP RESISTOR	430561/S
R28	2K/1%_SMD	1% PRECISION CHIP RESISTOR	430561/S
R29	2K/1%_SMD	1% PRECISION CHIP RESISTOR	430561/S
R30	2KT/L/10G	PRESET POTENTIOMETER MULTITURN	403118
R31	1k/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R32	1k/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R33	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R34	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R35	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R36	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R37	1k/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R38	1k/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R39	1M_SMD	STANDARD CHIP RESISTOR	430524/S
R40	10_SMD	STANDARD CHIP RESISTOR	430493/S
R41	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R42	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R43	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R44	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R45	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R46	270/1%	PRECISION RESISTOR 1% 0.6W	430559
R47	270/1%	PRECISION RESISTOR 1% 0.6W	430559
R48	270/1%	PRECISION RESISTOR 1% 0.6W	430559
R49	500KT/L/10G	PRESET POTENTIOMETER MULTITURN	403122
R50	500KT/L/10G	PRESET POTENTIOMETER MULTITURN	403122
R51	39/1%	PRECISION RESISTOR 1% 0.6W	430560
R52	2K7_SMD	STANDARD CHIP RESISTOR	430568/S
R53	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R54	100T/L/10G	PRESET POTENTIOMETER MULTITURN	403120
R55	56K_SMD	STANDARD CHIP RESISTOR	430522/S
R56	15k_SMD	STANDARD CHIP RESISTOR	430516/S
R57	2KT/L/10G	PRESET POTENTIOMETER MULTITURN	403118
R58	470_SMD	STANDARD CHIP RESISTOR	430499/S
R59	470_SMD	STANDARD CHIP RESISTOR	430499/S
R60	470_SMD	STANDARD CHIP RESISTOR	430499/S
R61	100T/L/10G	PRESET POTENTIOMETER MULTITURN	403120
R62	100T/L/10G	PRESET POTENTIOMETER MULTITURN	403120
R63	470/1%_SMD	1% PRECISION CHIP RESISTOR	430562/S
R64	470/1%_SMD	1% PRECISION CHIP RESISTOR	430562/S
R65	11K/1%_SMD	1% PRECISION CHIP RESISTOR	430552/S
R66	11K/1%_SMD	1% PRECISION CHIP RESISTOR	430552/S
R67	8K/1%_SMD	1% PRECISION CHIP RESISTOR	430563/S
R68	8K/1%_SMD	1% PRECISION CHIP RESISTOR	430563/S
R69	15K/1%_SMD	1% PRECISION CHIP RESISTOR	430564/S

File name: RF output current & voltage board alsa code: [801464] Rev.: [4.2]
Date: June 21, 2007

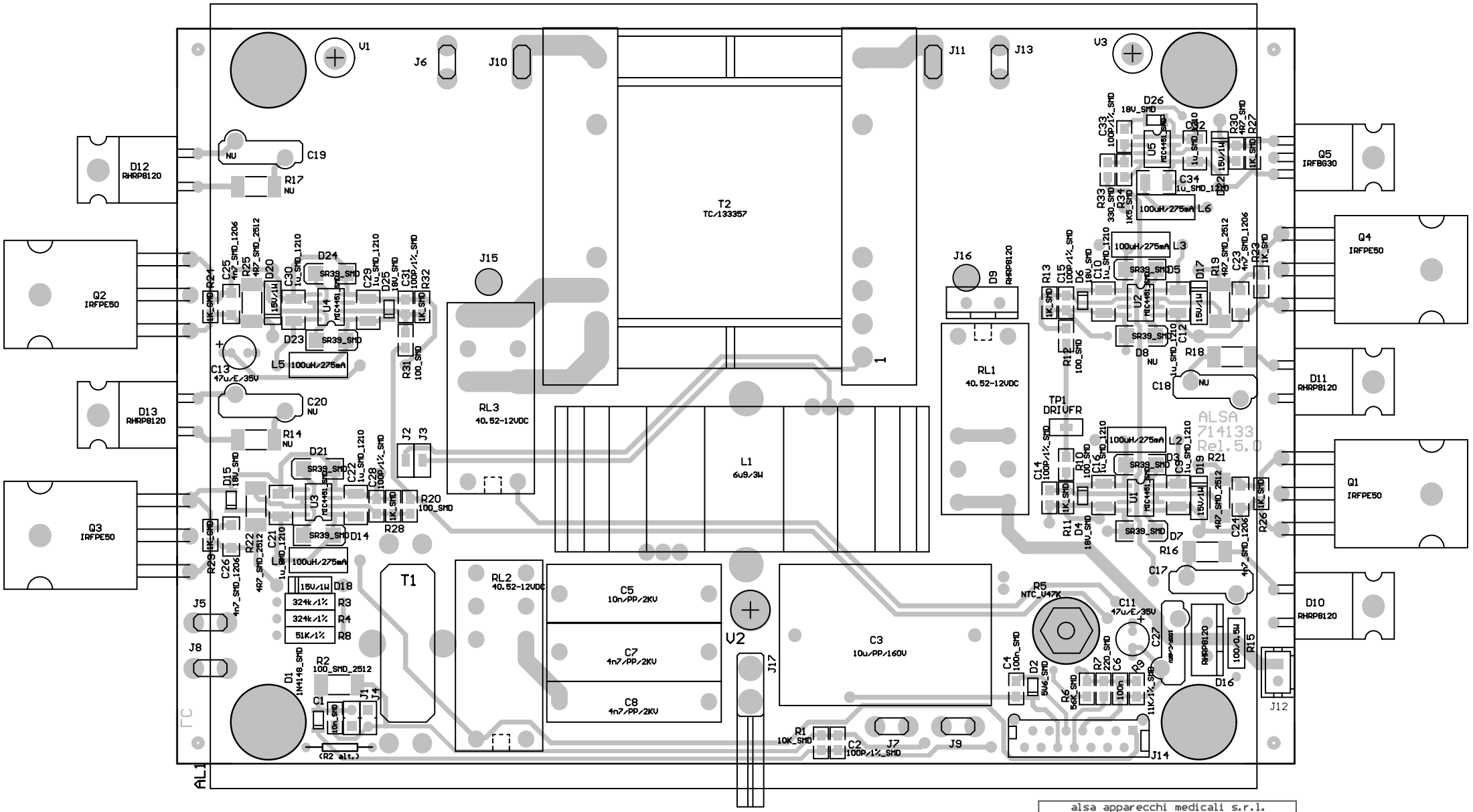
Ref	Part Type	Description	alsa code
R70	15K/1%_SMD	1% PRECISION CHIP RESISTOR	430564/S
R71	NTC_D47K	NTC THERMISTOR DISK 47K 5%	430457
R72	NTC_D47K	NTC THERMISTOR DISK 47K 5%	430457
R73	NTC_D10K	DISK 10K NTC	430541
R74	NTC_D10K	DISK 10K NTC	430541
R75	9k1/1%_SMD	1% PRECISION CHIP RESISTOR	430565/S
R76	15k/1%_SMD	1% PRECISION CHIP RESISTOR	430564/S
R77	9k1/1%_SMD	1% PRECISION CHIP RESISTOR	430565/S
R78	15k/1%_SMD	1% PRECISION CHIP RESISTOR	430564/S
R79	12k/1%_SMD	1% PRECISION CHIP RESISTOR	430566/S
R80	12k/1%_SMD	1% PRECISION CHIP RESISTOR	430566/S
R81	2KT/L/10G	PRESET POTENTIOMETER MULTITURN	403118
C1	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C2	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C3	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C4	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C5	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C6	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C7	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C8	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C9	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C10	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C11	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C12	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C13	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C14	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C15	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C16	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C17	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C18	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C19	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C20	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C21	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C22	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C23	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C24	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C25	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C26	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C27	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C28	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C29	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C30	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C31	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C32	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C33	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C34	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C35	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C36	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C37	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C38	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C39	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C40	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
D1	1N4148_SMD	SMD DIODE	420098/S
D2	1N4148_SMD	SMD DIODE	420098/S
D3	1N4148_SMD	SMD DIODE	420098/S
D4	1N4148_SMD	SMD DIODE	420098/S
D5	1N4148_SMD	SMD DIODE	420098/S
D6	1N4148_SMD	SMD DIODE	420098/S
D7	1N4148_SMD	SMD DIODE	420098/S
D8	1N4148_SMD	SMD DIODE	420098/S
D9	1N4148_SMD	SMD DIODE	420098/S
D10	BAT83	SCHOTTKY DIODE	420070
D11	BAT83	SCHOTTKY DIODE	420070
Q1	BC817_SMD	SMD NPN TRANSISTOR	427089/S
U1	ADG419_SMD	SMD SINGLE ANALOG SWITCH	482116
U2	ADG419_SMD	SMD SINGLE ANALOG SWITCH	482116
U3	LM6172_SMD	SMD DUAL OP AMP	482117
U4	LM6172_SMD	SMD DUAL OP AMP	482117
U5	TL072_SMD	SMD OP.AMP. TL072	482125

File name: RF output current & voltage board alsa code: [801464] Rev.: [4.2]
Date: June 21, 2007

Ref	Part Type	Description	alsa code
U6	LM431	VOLTAGE REGULATOR	482078
U7	LM319_SMD	SMD HIGH SPEED DUAL COMPARATOR	482132
U8	AD637_SMD	SMD RMS-DC CONVERTER	482124
U9	AD637_SMD	SMD RMS-DC CONVERTER	482124
U10	LM324_SMD	SMD QUAD OP AMP LM324	482127
T1	Dual_Leak_tr	DIFFERENTIAL CURRENT TRANSFORMER	714177
RL1	PRMA_1A	REED RELAY	404049
J1	PAND_3PF	3 POLES PCB CONNECTOR PANDUIT FEMALE 90°	384037
J2	PAND_3PF	3 POLES PCB CONNECTOR PANDUIT FEMALE 90°	384037
J3	PAND_3PF	3 POLES PCB CONNECTOR PANDUIT FEMALE 90°	384037
J4	PAND_3PF	3 POLES PCB CONNECTOR PANDUIT FEMALE 90°	384037
J5	CONN_2P_AMP	POLARIZED 2 POLES MALE CONNECTOR	384068
J6	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J7	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042



alsa apparecchi medicali s.r.l.			alsa bologna
EXCELL MCDSe			
RF Power Board			
BisMy03RfGenerator.SCHDOC			
alsa code: 801465	Rel.: 5.1	25/10/2007	
Drawn by:	Approval:		



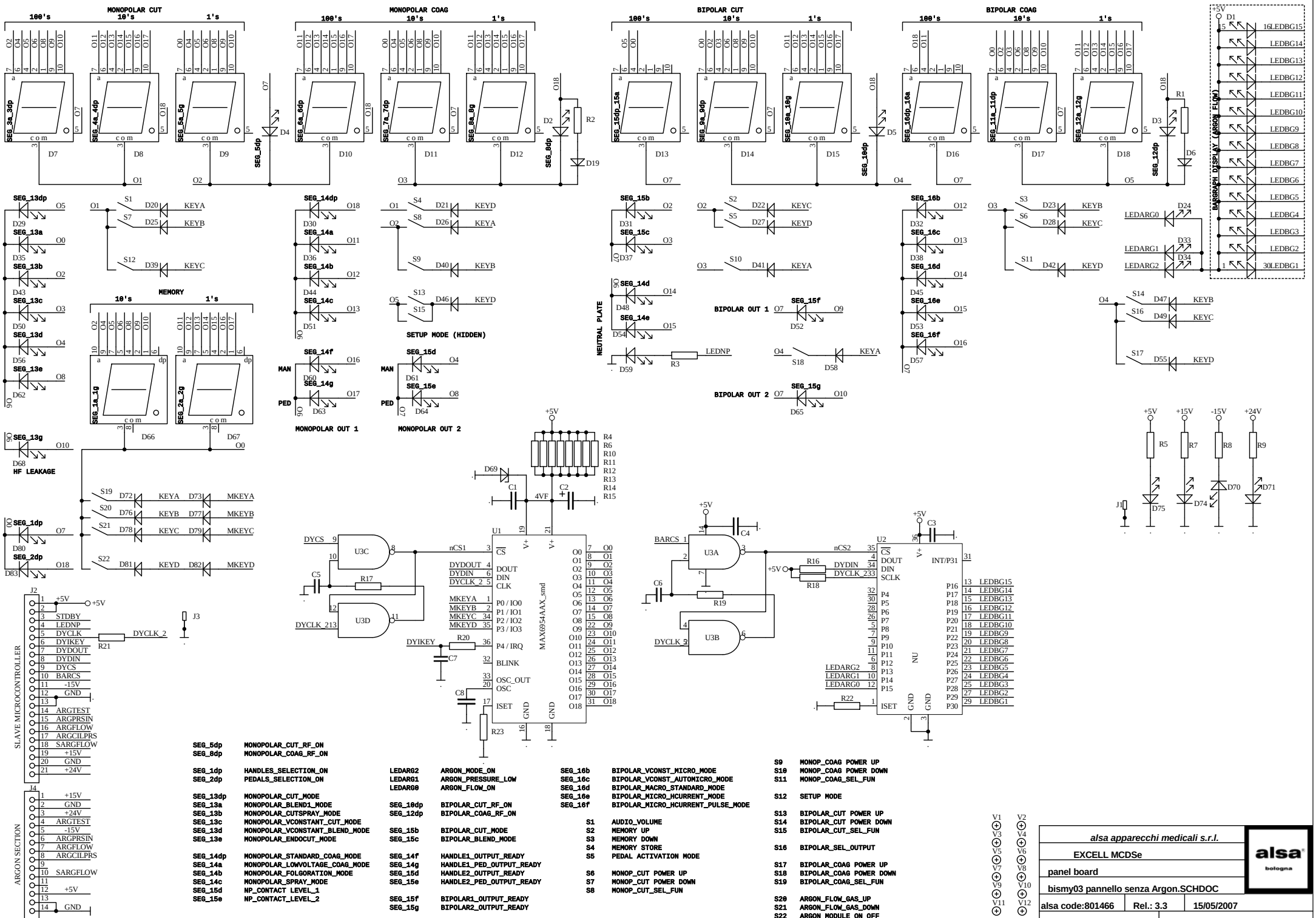
alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
R.F.Power board		
alsa code: 801465	Rev:5.1	25/10/2007
Drawn by:	Approval:	

File name: RF power board alsa code: [801465] Rev.: [5.1]
Date: October 25, 2006

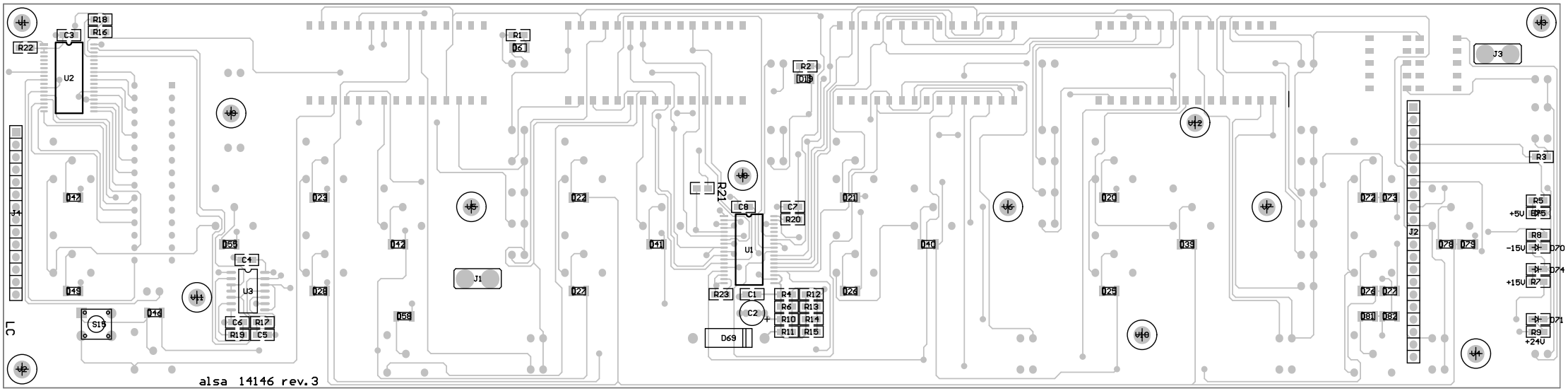
Ref	Part Type	Description	alsa code
R1	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R2	100_SMD_2512	1W CHIP RESISTOR	430574/S
R3	324k/1%	PRECISION RESISTOR 1% 0.6W	430558
R4	324k/1%	PRECISION RESISTOR 1% 0.6W	430558
R5	NTC_V47K	NTC THERMISTOR THREADED 47K 5%	430452
R6	56K_SMD	STANDARD CHIP RESISTOR	430522/S
R7	220_SMD	STANDARD CHIP RESISTOR	430497/S
R8	51K/1%	PRECISION RESISTOR 1% 0.6W	430482
R9	11K/1%_SMD	1% PRECISION CHIP RESISTOR	430552/S
R10	100_SMD	STANDARD CHIP RESISTOR	430496/S
R11	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R12	100_SMD	STANDARD CHIP RESISTOR	430496/S
R13	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R14	NU	NOT USED	------
R15	100/0.5W	METAL FILM RESISTOR 1/2 W 5%	430107
R16	NU	NOT USED	------
R17	NU	NOT USED	------
R18	NU	NOT USED	------
R19	4R7_SMD_2512	1W CHIP RESISTOR	430569/S
R20	100_SMD	STANDARD CHIP RESISTOR	430496/S
R21	4R7_SMD_2512	1W CHIP RESISTOR	430569/S
R22	4R7_SMD_2512	1W CHIP RESISTOR	430569/S
R23	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R24	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R25	4R7_SMD_2512	1W CHIP RESISTOR	430569/S
R26	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R27	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R28	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R29	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R30	4R7_SMD	STANDARD CHIP RESISTOR	430553/S
R31	100_SMD	STANDARD CHIP RESISTOR	430496/S
R32	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R33	330_SMD	STANDARD CHIP RESISTOR	430498/S
R34	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
C1	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C2	100P/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C3	10u/PP/160V	POLYPROPYLENE CAPACITOR	400308
C4	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C5	10n/PP/2KV	POLYPROPYLENE CAPACITOR	400236
C6	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C7	4n7/PP/2KV	POLYPROPYLENE CAPACITOR	400306
C8	4n7/PP/2KV	POLYPROPYLENE CAPACITOR	400306
C9	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C10	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C11	47u/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C12	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C13	47u/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C14	100P/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C15	100P/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C16	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C17	NU	NOT USED	------
C18	NU	NOT USED	------
C19	NU	NOT USED	------
C20	NU	NOT USED	------
C21	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C22	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C23	4n7_SMD_1206	CERAMIC CHIP CAPACITOR	400335/S
C24	4n7_SMD_1206	CERAMIC CHIP CAPACITOR	400335/S
C25	4n7_SMD_1206	CERAMIC CHIP CAPACITOR	400335/S
C26	4n7_SMD_1206	CERAMIC CHIP CAPACITOR	400335/S
C27	100P/C/6KV	CERAMIC CAPACITOR	400283
C28	100P/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C29	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C30	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C31	100P/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C32	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C33	100P/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C34	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
D1	1N4148_SMD	SMD DIODE	420098/S

File name: RF power board alsa code: [801465] Rev.: [5.1]
Date: October 25, 2006

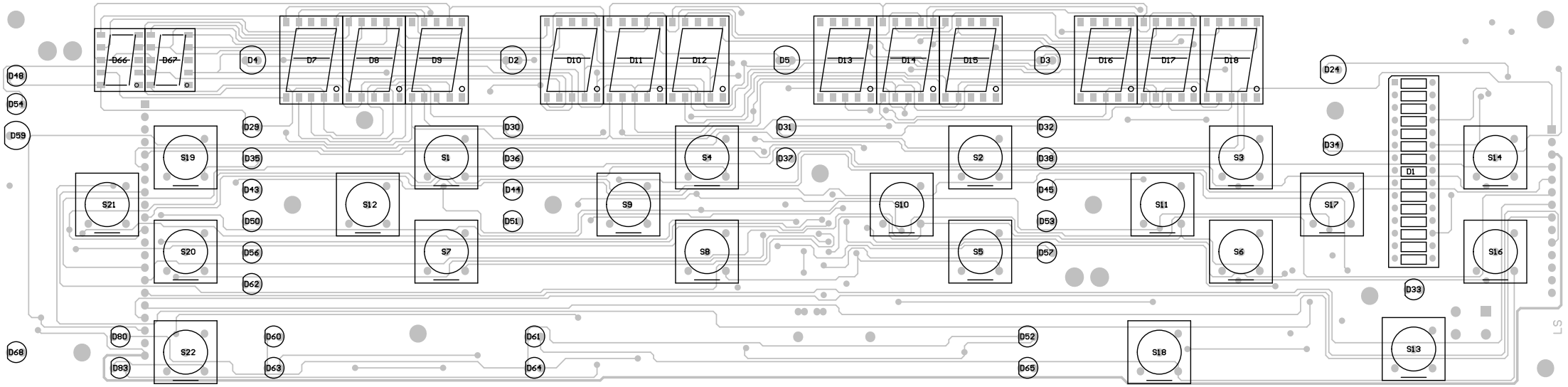
Ref	Part Type	Description	alsa code
D2	5V6_SMD	SMD ZENER DIODE	420102/S
D3	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D4	18V_SMD	SMD ZENER DIODE	420115/S
D5	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D6	18V_SMD	SMD ZENER DIODE	420115/S
D7	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D8	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D9	RHRP8120	ULTRA FAST DIODE	420095
D10	RHRP8120	ULTRA FAST DIODE	420095
D11	RHRP8120	ULTRA FAST DIODE	420095
D12	RHRP8120	ULTRA FAST DIODE	420095
D13	RHRP8120	ULTRA FAST DIODE	420095
D14	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D15	18V_SMD	SMD ZENER DIODE	420115/S
D16	RHRP8120	ULTRA FAST DIODE	420095
D17	15V/1W	ZENER DIODE 15V/1W	420097
D18	15V/1W	ZENER DIODE 15V/1W	420097
D19	15V/1W	ZENER DIODE 15V/1W	420097
D20	15V/1W	ZENER DIODE 15V/1W	420097
D21	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D22	15V/1W	ZENER DIODE 15V/1W	420097
D23	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D24	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D25	18V_SMD	SMD ZENER DIODE	420115/S
D26	18V_SMD	SMD ZENER DIODE	420115/S
Q1	IRFPE50	N CHANNEL MOSFET	427087
Q2	IRFPE50	N CHANNEL MOSFET	427087
Q3	IRFPE50	N CHANNEL MOSFET	427087
Q4	IRFPE50	N CHANNEL MOSFET	427087
Q5	IRFBG30	N CHANNEL MOSFET	427088
U1	MIC4451_SMD	SMD INVERTING MOSFET DRIVER	482122
U2	MIC4451_SMD	SMD INVERTING MOSFET DRIVER	482122
U3	MIC4451_SMD	SMD INVERTING MOSFET DRIVER	482122
U4	MIC4451_SMD	SMD INVERTING MOSFET DRIVER	482122
U5	MIC4451_SMD	SMD INVERTING MOSFET DRIVER	482122
L1	6u9/3W	6.9 UH INDUCTOR	714237
L2	100uH/275mA	INDUCTOR	422006
L3	100uH/275mA	INDUCTOR	422006
L4	100uH/275mA	INDUCTOR	422006
L5	100uH/275mA	INDUCTOR	422006
L6	100uH/275mA	INDUCTOR	422006
T1	LEAK_CURR_TR	CURRENT TRANSFORMER	714177
T2	TC/133357	HF OUTPUT TRANSFORMER	801486
RL1	40.52-12VDC	RELAY OMRON	404040
RL2	40.52-12VDC	RELAY OMRON	404040
RL3	40.52-12VDC	RELAY OMRON	404040
J1	CONN_2PM	2 POLES MALE CONNECTOR	384052
J4	CONN_2PM	2 POLES MALE CONNECTOR	384052
J5	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J6	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J7	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J8	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J9	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J10	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J11	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J12	CONN_2P_AMP	POLARIZED 2 POLES MALE CONNECTOR	384068
J13	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J14	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J17	399029	FASTON CONNECTOR P.C.B 90°	399029
AL1	ART_59_HOR_2	ALUMINIUM HEAT SINK	714174



SEG_5dp	MONOPOLAR_CUT_RF_ON
SEG_8dp	MONOPOLAR_COAG_RF_ON
SEG_1dp	HANDLES_SELECTION_ON
SEG_2dp	PEDALS_SELECTION_ON
SEG_13dp	MONOPOLAR_CUT_MODE
SEG_13a	MONOPOLAR_BLEND1_MODE
SEG_13b	MONOPOLAR_CUTSPRAY_MODE
SEG_13c	MONOPOLAR_VCONSTANT_CUT_MODE
SEG_13d	MONOPOLAR_VCONSTANT_BLEND_MODE
SEG_13e	MONOPOLAR_ENDOCUT_MODE
SEG_14dp	MONOPOLAR_STANDARD_COAG_MODE
SEG_14a	MONOPOLAR_LOWVOLTAGE_COAG_MODE
SEG_14b	MONOPOLAR_FOLGORATION_MODE
SEG_14c	MONOPOLAR_SPRAY_MODE
SEG_15d	NP_CONTACT LEVEL_1
SEG_15e	NP_CONTACT_LEVEL_2
LEDARG2	ARGON_MODE_ON
LEDARG1	ARGON_PRESSURE_LOW
LEDARG0	ARGON_FLOW_ON
SEG_10dp	BIPOLAR_CUT_RF_ON
SEG_12dp	BIPOLAR_COAG_RF_ON
SEG_15b	BIPOLAR_CUT_MODE
SEG_15c	BIPOLAR_BLEND_MODE
SEG_14f	HANDLE1_OUTPUT_READY
SEG_14g	HANDLE1_PED_OUTPUT_READY
SEG_15d	HANDLE2_OUTPUT_READY
SEG_15e	HANDLE2_PED_OUTPUT_READY
SEG_15f	BIPOLAR1_OUTPUT_READY
SEG_15g	BIPOLAR2_OUTPUT_READY
SEG_16b	BIPOLAR_VCONST_MICRO_MODE
SEG_16c	BIPOLAR_VCONST_AUTOMICRO_MODE
SEG_16d	BIPOLAR_MACRO_STANDARD_MODE
SEG_16e	BIPOLAR_MICRO_HCURRENT_MODE
SEG_16f	BIPOLAR_MICRO_HCURRENT_PULSE_MODE
S1	AUDIO_VOLUME
S2	MEMORY UP
S3	MEMORY DOWN
S4	MEMORY STORE
S5	PEDAL ACTIVATION MODE
S6	MONOP_CUT POWER UP
S7	MONOP_CUT POWER DOWN
S8	MONOP_CUT_SEL_FUN
S9	MONOP_COAG POWER UP
S10	MONOP_COAG POWER DOWN
S11	MONOP_COAG_SEL_FUN
S12	SETUP MODE
S13	BIPOLAR_CUT POWER UP
S14	BIPOLAR_CUT POWER DOWN
S15	BIPOLAR_CUT_SEL_FUN
S16	BIPOLAR_SEL_OUTPUT
S17	BIPOLAR_COAG POWER UP
S18	BIPOLAR_COAG POWER DOWN
S19	BIPOLAR_COAG_SEL_FUN
S20	ARGON_FLOW_GAS_UP
S21	ARGON_FLOW_GAS_DOWN
S22	ARGON_MODULE_ON_OFF



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Panel board		
alsa code:801466	Rev: 3.3	15/05/2007
Drawn by:	Approval:	



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Panel board		
alsa code:801466	Rev: 3.3	15/05/2007
Approval:	Drawn by:	

File name: Panel board alsa code: [801466] Rev.: [3.3]
Date: May 15, 2007

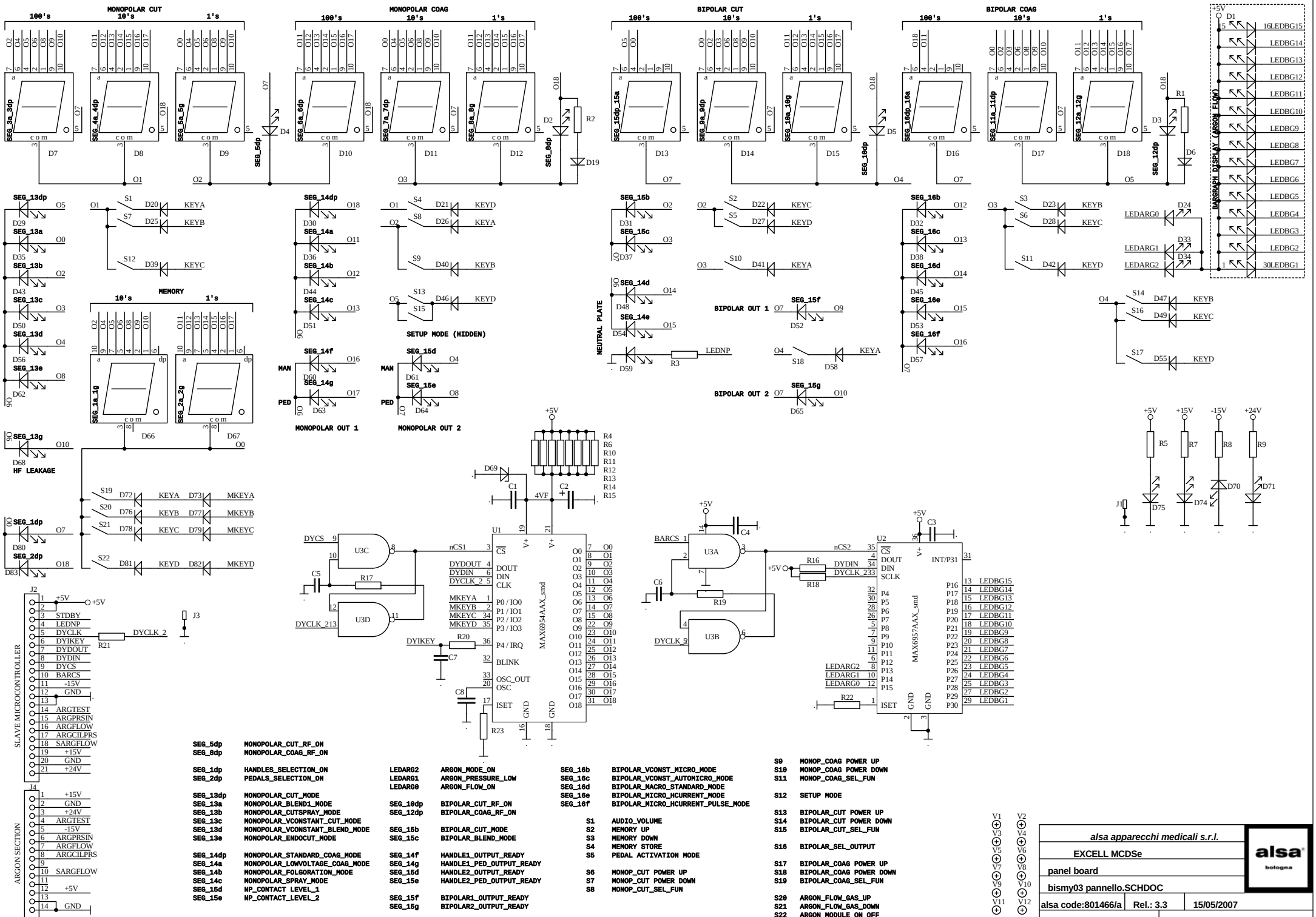
Ref	Part Type	Description	alsa code
R1	NU	NOT USED	------
R2	NU	NOT USED	------
R3	470_SMD	STANDARD CHIP RESISTOR	430499/S
R4	33_SMD	STANDARD CHIP RESISTOR	430577/S
R5	NU	NOT USED	------
R6	33_SMD	STANDARD CHIP RESISTOR	430577/S
R7	NU	NOT USED	------
R8	NU	NOT USED	------
R9	NU	NOT USED	------
R10	33_SMD	STANDARD CHIP RESISTOR	430577/S
R11	33_SMD	STANDARD CHIP RESISTOR	430577/S
R12	33_SMD	STANDARD CHIP RESISTOR	430577/S
R13	33_SMD	STANDARD CHIP RESISTOR	430577/S
R14	33_SMD	STANDARD CHIP RESISTOR	430577/S
R15	33_SMD	STANDARD CHIP RESISTOR	430577/S
R16	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R17	100_SMD	STANDARD CHIP RESISTOR	430496/S
R18	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R19	100_SMD	STANDARD CHIP RESISTOR	430496/S
R20	100_SMD	STANDARD CHIP RESISTOR	430496/S
R21	100_SMD	STANDARD CHIP RESISTOR	430496/S
R22	39K_SMD	STANDARD CHIP RESISTOR	430535/S
R23	56K_SMD	STANDARD CHIP RESISTOR	430522/S
C1	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C2	47U/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C3	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C4	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C5	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C6	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C7	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C8	22P_SMD	CERAMIC CHIP CAPACITOR	400315/S
D1	LEDBAR DC-15GWA	LEDBAR B-1500	420113
D2	GL5HB8	BLUE LED LAMP 5MM	420092
D3	GL5HB8	BLUE LED LAMP 5MM	420092
D4	GL5HY8	YELLOW LED LAMP 5MM	420036
D5	GL5HY8	YELLOW LED LAMP 5MM	420036
D6	NU	NOT USED	------
D7	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D8	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D9	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D10	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D11	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D12	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D13	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D14	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D15	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D16	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D17	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D18	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D19	NU	NOT USED	------
D20	1N4148_SMD	SMD DIODE	420098/S
D21	1N4148_SMD	SMD DIODE	420098/S
D22	1N4148_SMD	SMD DIODE	420098/S
D23	1N4148_SMD	SMD DIODE	420098/S
D24	GL5HW8	WHITE LED LAMP 5MM	420119
D25	1N4148_SMD	SMD DIODE	420098/S
D26	1N4148_SMD	SMD DIODE	420098/S
D27	1N4148_SMD	SMD DIODE	420098/S
D28	1N4148_SMD	SMD DIODE	420098/S

File name: Panel board alsa code: [801466] Rev.: [3.3]
Date: May 15, 2007

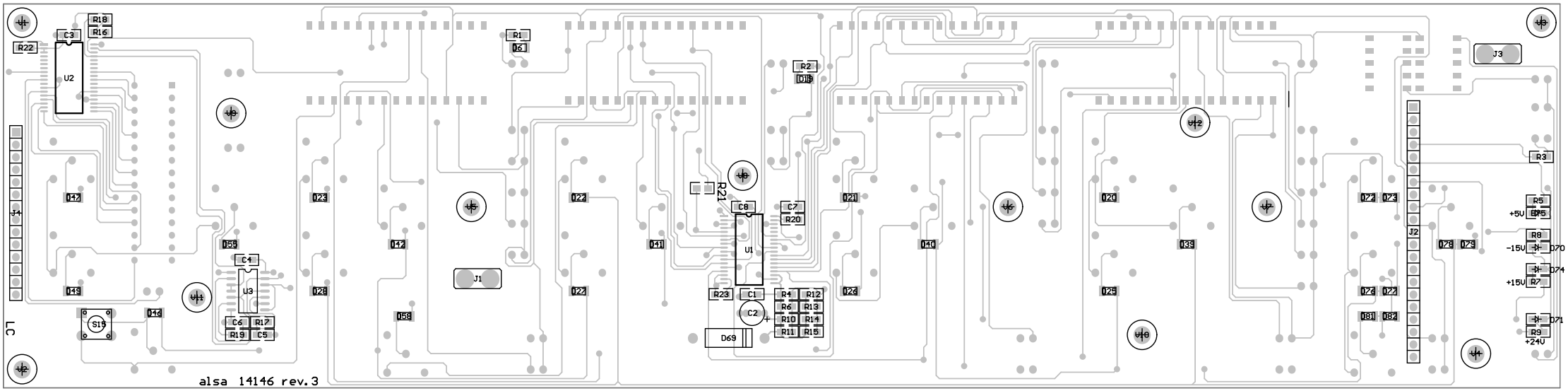
Ref	Part Type	Description	alsa code
D29	LEDG3	GREEN LED LAMP 3MM	420079
D30	LEDG3	GREEN LED LAMP 3MM	420079
D31	LEDG3	GREEN LED LAMP 3MM	420079
D32	LEDG3	GREEN LED LAMP 3MM	420079
D33	LEDR3	RED LED LAMP 3MM	420108
D34	LEDG3	GREEN LED LAMP 3MM	420079
D35	LEDG3	GREEN LED LAMP 3MM	420079
D36	LEDG3	GREEN LED LAMP 3MM	420079
D37	LEDG3	GREEN LED LAMP 3MM	420079
D38	LEDG3	GREEN LED LAMP 3MM	420079
D39	1N4148_SMD	SMD DIODE	420098/S
D40	1N4148_SMD	SMD DIODE	420098/S
D41	1N4148_SMD	SMD DIODE	420098/S
D42	1N4148_SMD	SMD DIODE	420098/S
D43	LEDG3	GREEN LED LAMP 3MM	420079
D44	LEDG3	GREEN LED LAMP 3MM	420079
D45	LEDG3	GREEN LED LAMP 3MM	420079
D46	1N4148_SMD	SMD DIODE	420098/S
D47	1N4148_SMD	SMD DIODE	420098/S
D48	LEDO3	ORANGE LED LAMP 3MM	420118
D49	1N4148_SMD	SMD DIODE	420098/S
D50	LEDG3	GREEN LED LAMP 3MM	420079
D51	LEDG3	GREEN LED LAMP 3MM	420079
D52	LEDG3	GREEN LED LAMP 3MM	420079
D53	LEDG3	GREEN LED LAMP 3MM	420079
D54	LEDO3	ORANGE LED LAMP 3MM	420118
D55	1N4148_SMD	SMD DIODE	420098/S
D56	LEDG3	GREEN LED LAMP 3MM	420079
D57	LEDG3	GREEN LED LAMP 3MM	420079
D58	1N4148_SMD	SMD DIODE	420098/S
D59	GL5HR8	RED LED LAMP 5MM	420025
D60	LEDG3	GREEN LED LAMP 3MM	420079
D61	LEDG3	GREEN LED LAMP 3MM	420079
D62	LEDG3	GREEN LED LAMP 3MM	420079
D63	LEDG3	GREEN LED LAMP 3MM	420079
D64	LEDG3	GREEN LED LAMP 3MM	420079
D65	LEDG3	GREEN LED LAMP 3MM	420079
D66	TDSL3160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420096
D67	TDSL3160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420096
D68	LEDR3	RED LED LAMP 3MM	420108
D69	3V9/5W	ZENER DIODE 3V9/5W	420112
D70	NU	NOT USED	------
D71	NU	NOT USED	------
D72	1N4148_SMD	SMD DIODE	420098/S
D73	1N4148_SMD	SMD DIODE	420098/S
D74	NU	NOT USED	------
D75	NU	NOT USED	------
D76	1N4148_SMD	SMD DIODE	420098/S
D77	1N4148_SMD	SMD DIODE	420098/S
D78	1N4148_SMD	SMD DIODE	420098/S
D79	1N4148_SMD	SMD DIODE	420098/S
D80	LEDG3	GREEN LED LAMP 3MM	420079
D81	1N4148_SMD	SMD DIODE	420098/S
D82	1N4148_SMD	SMD DIODE	420098/S
D83	LEDG3	GREEN LED LAMP 3MM	420079
U1	MAX6954AAX_smd	SMD DISPLAY DRIVER	482118
U2	MAX6957AAX_smd	SMD DISPLAY DRIVER	482119
U3	74HCT00_SMD	SMD HCT7400	482107
S1	MTG_1241	PUSHBUTTON SCHURTER	416094

File name: Panel board alsa code: [801466] Rev.: [3.3]
Date: May 15, 2007

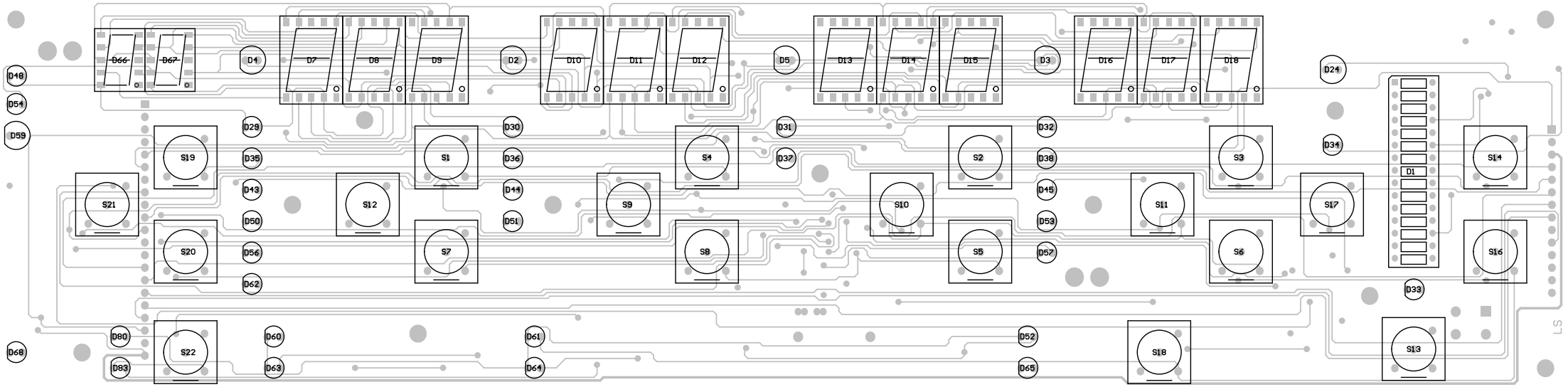
Ref	Part Type	Description	alsa code
S2	MTG_1241	PUSHBUTTON SCHURTER	416094
S3	MTG_1241	PUSHBUTTON SCHURTER	416094
S4	MTG_1241	PUSHBUTTON SCHURTER	416094
S5	MTG_1241	PUSHBUTTON SCHURTER	416094
S6	MTG_1241	PUSHBUTTON SCHURTER	416094
S7	MTG_1241	PUSHBUTTON SCHURTER	416094
S8	MTG_1241	PUSHBUTTON SCHURTER	416094
S9	MTG_1241	PUSHBUTTON SCHURTER	416094
S10	MTG_1241	PUSHBUTTON SCHURTER	416094
S11	MTG_1241	PUSHBUTTON SCHURTER	416094
S12	MTG_1241	PUSHBUTTON SCHURTER	416094
S13	MTG_1241	PUSHBUTTON SCHURTER	416094
S14	MTG_1241	PUSHBUTTON SCHURTER	416094
S15	NU	NOT USED	------
S16	MTG_1241	PUSHBUTTON SCHURTER	416094
S17	MTG_1241	PUSHBUTTON SCHURTER	416094
S18	MTG_1241	PUSHBUTTON SCHURTER	416094
S19	MTG_1241	PUSHBUTTON SCHURTER	416094
S20	MTG_1241	PUSHBUTTON SCHURTER	416094
S21	MTG_1241	PUSHBUTTON SCHURTER	416094
S22	MTG_1241	PUSHBUTTON SCHURTER	416094
J1	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J2	CONN_21PM	21 POLES MALE CONNECTOR	384046
J3	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J4	CONN_14PF	14 POLES FEMALE CONNECTOR	384066



SEG_5dp	MONOPOLAR_CUT_RF_ON
SEG_8dp	MONOPOLAR_COAG_RF_ON
SEG_1dp	HANDLES_SELECTION_ON
SEG_2dp	PEDALS_SELECTION_ON
SEG_13dp	MONOPOLAR_CUT_MODE
SEG_13a	MONOPOLAR_BLEND1_MODE
SEG_13b	MONOPOLAR_CUTSPRAY_MODE
SEG_13c	MONOPOLAR_VCONSTANT_CUT_MODE
SEG_13d	MONOPOLAR_VCONSTANT_BLEND_MODE
SEG_13e	MONOPOLAR_ENDOCUT_MODE
SEG_14dp	MONOPOLAR_STANDARD_COAG_MODE
SEG_14a	MONOPOLAR_LOWVOLTAGE_COAG_MODE
SEG_14b	MONOPOLAR_FOLGORATION_MODE
SEG_14c	MONOPOLAR_SPRAY_MODE
SEG_15d	NP_CONTACT LEVEL_1
SEG_15e	NP_CONTACT_LEVEL_2
LEDARG2	ARGON_MODE_ON
LEDARG1	ARGON_PRESSURE_LOW
LEDARG0	ARGON_FLOW_ON
SEG_10dp	BIPOLAR_CUT_RF_ON
SEG_12dp	BIPOLAR_COAG_RF_ON
SEG_15b	BIPOLAR_CUT_MODE
SEG_15c	BIPOLAR_BLEND_MODE
SEG_14f	HANDLE1_OUTPUT_READY
SEG_14g	HANDLE1_PED_OUTPUT_READY
SEG_15d	HANDLE2_OUTPUT_READY
SEG_15e	HANDLE2_PED_OUTPUT_READY
SEG_15f	BIPOLAR1_OUTPUT_READY
SEG_15g	BIPOLAR2_OUTPUT_READY
SEG_16b	BIPOLAR_VCONST_MICRO_MODE
SEG_16c	BIPOLAR_VCONST_AUTOMICRO_MODE
SEG_16d	BIPOLAR_MACRO_STANDARD_MODE
SEG_16e	BIPOLAR_MICRO_HCURRENT_MODE
SEG_16f	BIPOLAR_MICRO_HCURRENT_PULSE_MODE
S1	AUDIO_VOLUME
S2	MEMORY UP
S3	MEMORY DOWN
S4	MEMORY STORE
S5	PEDAL ACTIVATION MODE
S6	MONOP_CUT POWER UP
S7	MONOP_CUT POWER DOWN
S8	MONOP_CUT_SEL_FUN
S9	MONOP_COAG POWER UP
S10	MONOP_COAG POWER DOWN
S11	MONOP_COAG_SEL_FUN
S12	SETUP MODE
S13	BIPOLAR_CUT POWER UP
S14	BIPOLAR_CUT POWER DOWN
S15	BIPOLAR_CUT_SEL_FUN
S16	BIPOLAR_SEL_OUTPUT
S17	BIPOLAR_COAG POWER UP
S18	BIPOLAR_COAG POWER DOWN
S19	BIPOLAR_COAG_SEL_FUN
S20	ARGON_FLOW_GAS_UP
S21	ARGON_FLOW_GAS_DOWN
S22	ARGON_MODULE_ON_OFF



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Panel board		
alsa code:801466/a	Rev: 3.3	15/05/2007
Drawn by:	Approval:	



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Panel board		
alsa code:801466/a	Rev: 3.3	15/05/2007
Approval:	Draun by:	

File name: Panel board alsa code: [801466/a] Rev.: [3.3]
Date: May 15, 2007

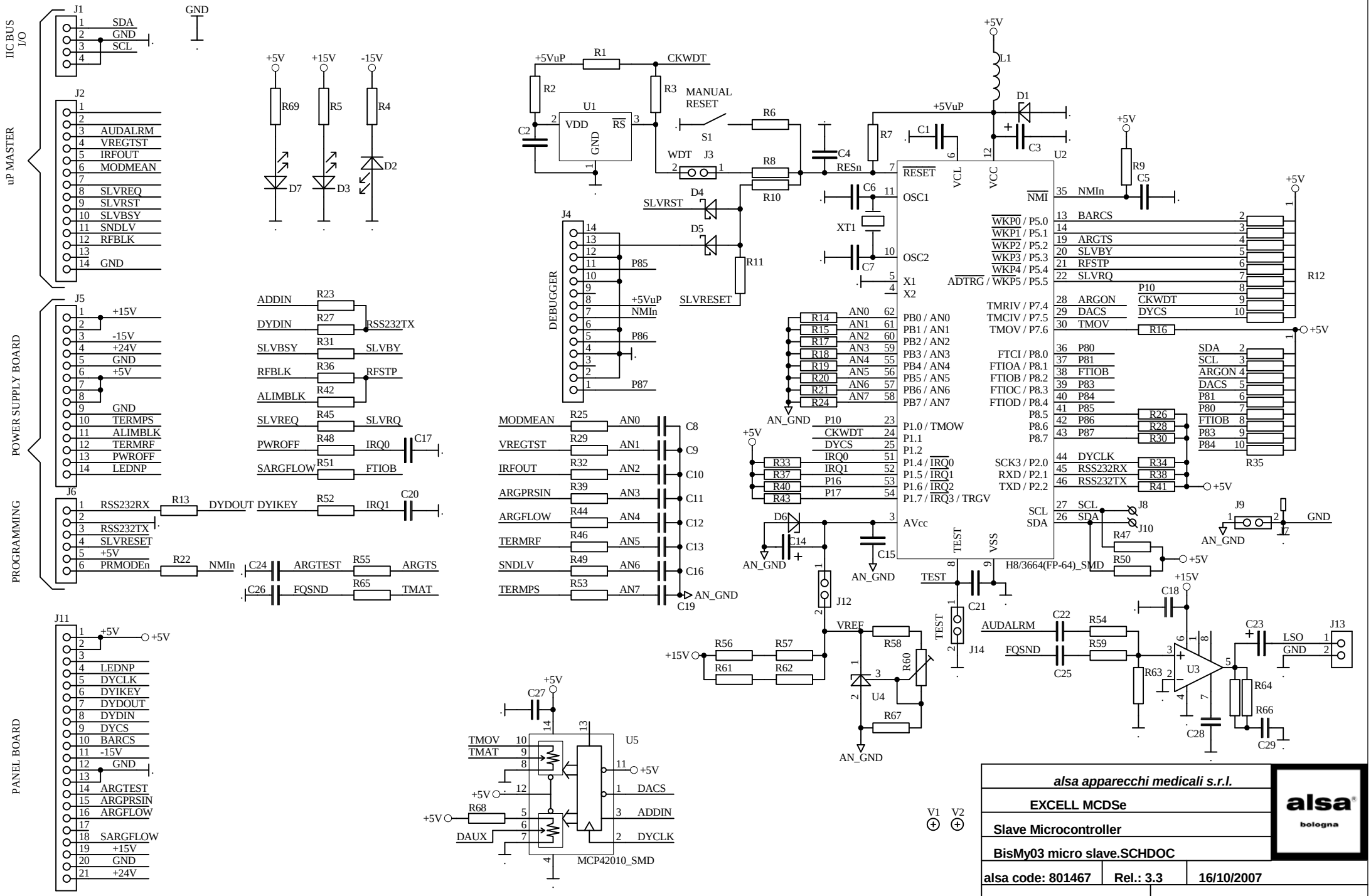
Ref	Part Type	Description	alsa code
R1	NU	NOT USED	------
R2	NU	NOT USED	------
R3	470_SMD	STANDARD CHIP RESISTOR	430499/S
R4	33_SMD	STANDARD CHIP RESISTOR	430577/S
R5	NU	NOT USED	------
R6	33_SMD	STANDARD CHIP RESISTOR	430577/S
R7	NU	NOT USED	------
R8	NU	NOT USED	------
R9	NU	NOT USED	------
R10	33_SMD	STANDARD CHIP RESISTOR	430577/S
R11	33_SMD	STANDARD CHIP RESISTOR	430577/S
R12	33_SMD	STANDARD CHIP RESISTOR	430577/S
R13	33_SMD	STANDARD CHIP RESISTOR	430577/S
R14	33_SMD	STANDARD CHIP RESISTOR	430577/S
R15	33_SMD	STANDARD CHIP RESISTOR	430577/S
R16	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R17	100_SMD	STANDARD CHIP RESISTOR	430496/S
R18	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R19	100_SMD	STANDARD CHIP RESISTOR	430496/S
R20	100_SMD	STANDARD CHIP RESISTOR	430496/S
R21	100_SMD	STANDARD CHIP RESISTOR	430496/S
R22	39K_SMD	STANDARD CHIP RESISTOR	430535/S
R23	56K_SMD	STANDARD CHIP RESISTOR	430522/S
C1	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C2	47U/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C3	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C4	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C5	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C6	1n/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C7	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C8	22P_SMD	CERAMIC CHIP CAPACITOR	400315/S
D1	LEDBAR 15GWA	LEDBAR B-1500	420113
D2	GL5HB8	BLUE LED LAMP 5MM	420092
D3	GL5HB8	BLUE LED LAMP 5MM	420092
D4	GL5HY8	YELLOW LED LAMP 5MM	420036
D5	GL5HY8	YELLOW LED LAMP 5MM	420036
D6	1N4148_SMD	SMD DIODE	420098/S
D7	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D8	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D9	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D10	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D11	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D12	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D13	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D14	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D15	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D16	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D17	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D18	TDSR5160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420107
D19	1N4148_SMD	SMD DIODE	420098/S
D20	1N4148_SMD	SMD DIODE	420098/S
D21	1N4148_SMD	SMD DIODE	420098/S
D22	1N4148_SMD	SMD DIODE	420098/S
D23	1N4148_SMD	SMD DIODE	420098/S
D24	GL5HW8	WHITE LED LAMP 5MM	420119
D25	1N4148_SMD	SMD DIODE	420098/S
D26	1N4148_SMD	SMD DIODE	420098/S
D27	1N4148_SMD	SMD DIODE	420098/S
D28	1N4148_SMD	SMD DIODE	420098/S
D29	LEDG3	GREEN LED LAMP 3MM	420079
D30	LEDG3	GREEN LED LAMP 3MM	420079
D31	LEDG3	GREEN LED LAMP 3MM	420079
D32	LEDG3	GREEN LED LAMP 3MM	420079
D33	LEDR3	RED LED LAMP 3MM	420108
D34	LEDG3	GREEN LED LAMP 3MM	420079
D35	LEDG3	GREEN LED LAMP 3MM	420079
D36	LEDG3	GREEN LED LAMP 3MM	420079
D37	LEDG3	GREEN LED LAMP 3MM	420079
D38	LEDG3	GREEN LED LAMP 3MM	420079

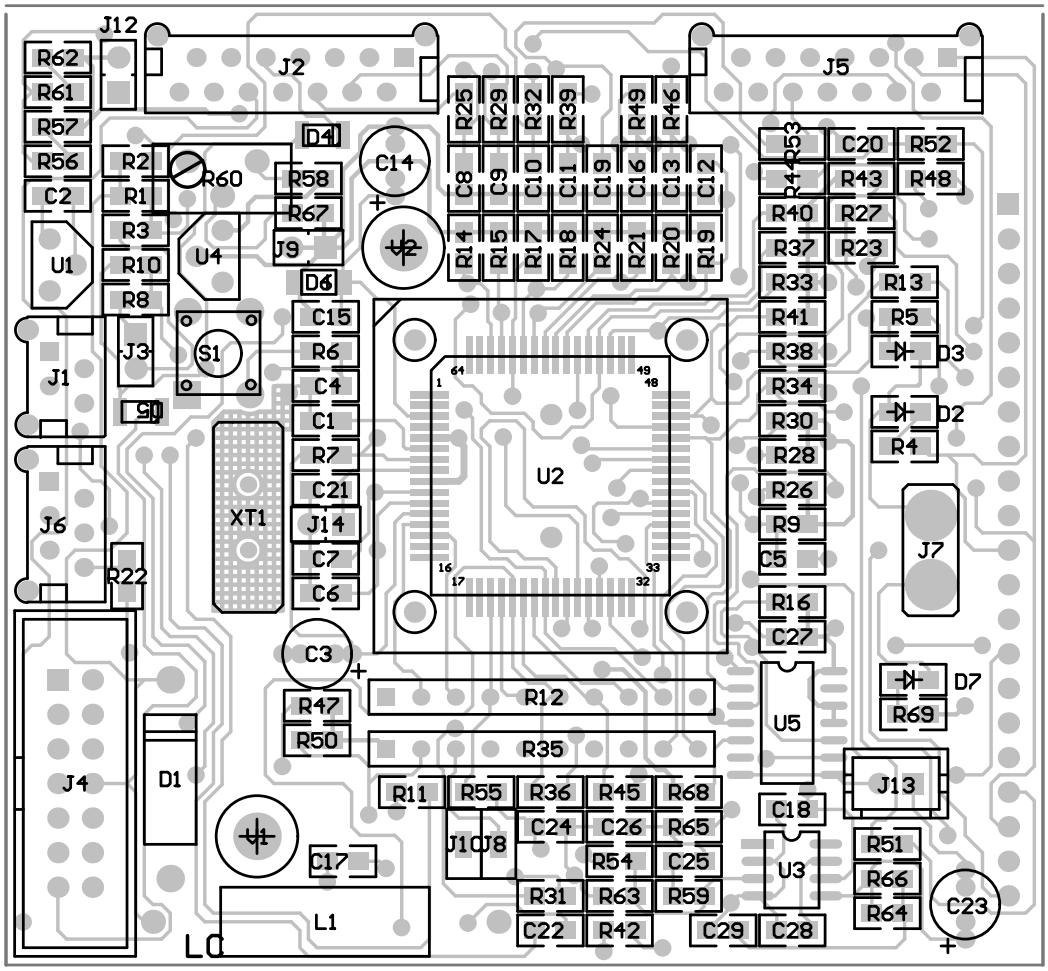
File name: Panel board alsa code: [801466/a] Rev.: [3.3]
Date: May 15, 2007

Ref	Part Type	Description	alsa code
D39	1N4148_SMD	SMD DIODE	420098/S
D40	1N4148_SMD	SMD DIODE	420098/S
D41	1N4148_SMD	SMD DIODE	420098/S
D42	1N4148_SMD	SMD DIODE	420098/S
D43	LEDG3	GREEN LED LAMP 3MM	420079
D44	LEDG3	GREEN LED LAMP 3MM	420079
D45	LEDG3	GREEN LED LAMP 3MM	420079
D46	1N4148_SMD	SMD DIODE	420098/S
D47	1N4148_SMD	SMD DIODE	420098/S
D48	LEDO3	ORANGE LED LAMP 3MM	420118
D49	1N4148_SMD	SMD DIODE	420098/S
D50	LEDG3	GREEN LED LAMP 3MM	420079
D51	LEDG3	GREEN LED LAMP 3MM	420079
D52	LEDG3	GREEN LED LAMP 3MM	420079
D53	LEDG3	GREEN LED LAMP 3MM	420079
D54	LEDO3	ORANGE LED LAMP 3MM	420118
D55	1N4148_SMD	SMD DIODE	420098/S
D56	LEDG3	GREEN LED LAMP 3MM	420079
D57	LEDG3	GREEN LED LAMP 3MM	420079
D58	1N4148_SMD	SMD DIODE	420098/S
D59	GL5HR8	RED LED LAMP 5MM	420025
D60	LEDG3	GREEN LED LAMP 3MM	420079
D61	LEDG3	GREEN LED LAMP 3MM	420079
D62	LEDG3	GREEN LED LAMP 3MM	420079
D63	LEDG3	GREEN LED LAMP 3MM	420079
D64	LEDG3	GREEN LED LAMP 3MM	420079
D65	LEDG3	GREEN LED LAMP 3MM	420079
D66	TDSL3160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420096
D67	TDSL3160	COMMON CATHODE RED 7 SEGMENT DISPLAY	420096
D68	LEDR3	RED LED LAMP 3MM	420108
D69	3V9/5W	ZENER DIODE 3V9/5W	420112
D70	NU	NOT USED	------
D71	NU	NOT USED	------
D72	1N4148_SMD	SMD DIODE	420098/S
D73	1N4148_SMD	SMD DIODE	420098/S
D74	NU	NOT USED	------
D75	NU	NOT USED	------
D76	1N4148_SMD	SMD DIODE	420098/S
D77	1N4148_SMD	SMD DIODE	420098/S
D78	1N4148_SMD	SMD DIODE	420098/S
D79	1N4148_SMD	SMD DIODE	420098/S
D80	LEDG3	GREEN LED LAMP 3MM	420079
D81	1N4148_SMD	SMD DIODE	420098/S
D82	1N4148_SMD	SMD DIODE	420098/S
D83	LEDG3	GREEN LED LAMP 3MM	420079
U1	MAX6954_smd	SMD DISPLAY DRIVER	482118
U2	MAX6957_smd	SMD DISPLAY DRIVER	482119
U3	74HCT00_SMD	SMD HCT7400	482107
S1	MTG_1241	PUSHBUTTON SCHURTER	416094
S2	MTG_1241	PUSHBUTTON SCHURTER	416094
S3	MTG_1241	PUSHBUTTON SCHURTER	416094
S4	MTG_1241	PUSHBUTTON SCHURTER	416094
S5	MTG_1241	PUSHBUTTON SCHURTER	416094
S6	MTG_1241	PUSHBUTTON SCHURTER	416094
S7	MTG_1241	PUSHBUTTON SCHURTER	416094
S8	MTG_1241	PUSHBUTTON SCHURTER	416094
S9	MTG_1241	PUSHBUTTON SCHURTER	416094
S10	MTG_1241	PUSHBUTTON SCHURTER	416094
S11	MTG_1241	PUSHBUTTON SCHURTER	416094
S12	MTG_1241	PUSHBUTTON SCHURTER	416094
S13	MTG_1241	PUSHBUTTON SCHURTER	416094
S14	MTG_1241	PUSHBUTTON SCHURTER	416094
S15	NU	NOT USED	------
S16	MTG_1241	PUSHBUTTON SCHURTER	416094
S17	MTG_1241	PUSHBUTTON SCHURTER	416094
S18	MTG_1241	PUSHBUTTON SCHURTER	416094
S19	MTG_1241	PUSHBUTTON SCHURTER	416094
S20	MTG_1241	PUSHBUTTON SCHURTER	416094
S21	MTG_1241	PUSHBUTTON SCHURTER	416094

File name: Panel board alsa code: [801466/a] Rev.: [3.3]
Date: May 15, 2007

Ref	Part Type	Description	alsa code
S22	MTG_1241	PUSHBUTTON SCHURTER	416094
J1	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J2	CONN_21PM	21 POLES MALE CONNECTOR	384046
J3	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J4	CONN_14PF	14 POLES FEMALE CONNECTOR	384066


IIC BUS I/O
uP MASTER
POWER SUPPLY BOARD
PROGRAMMING
PANEL BOARD
J1
SDA
GND
SCL
J2
AUDALRM
VREGTST
IRFOUT
MODMEAN
SLVREQ
SLVRST
SLVBSY
SNDLV
RFBLK
GND
J5
+15V
-15V
+24V
GND
+5V
GND
TERMPS
ALIMBLK
TERMRF
PWROFF
LEDNP
J6
RSS232RX
RSS232TX
SLVRESET
+5V
PRMODEn
DYDOUT
DYIKEY
IRQ1
NMIn
ARGTEST
FQSND
ARGFLOW
ARGPRSIN
SARGFLOW
TMAT
J11
LEDNP
DYCLK
DYIKEY
DYDOUT
DYDIN
DYCS
BARCS
-15V
GND
ARGTEST
ARGPRSIN
ARGFLOW
SARGFLOW
+15V
GND
+24V
R69
R5
R4
D7
D3
D2
+5V
+15V
-15V
R1
R2
R3
CKWDT
+5VuP
U1
VDD
RS
GND
C2
MANUAL RESET
S1
R6
WDT
J3
R8
R10
C4
RESn
R7
C1
L1
D1
C3
U2
+5V
R9
C5
D4
SLVRST
D5
SLVRESET
R11
J4
DEBUGGER
P85
P86
P87
NMIn
C6
XT1
C7
RESET
OSC1
OSC2
X1
X2
VCL
VCC
NMI
ADTRG
TMRIV / P7.4
TMCIV / P7.5
TMOV / P7.6
FTCI / P8.0
FTIOA / P8.1
FTIOB / P8.2
FTIOC / P8.3
FTIOD / P8.4
P8.5
P8.6
P8.7
SCK3 / P2.0
RXD / P2.1
TXD / P2.2
SCL
SDA
TEST
VSS
H8/3664(FP-64)_SMD
WKP0 / P5.0
WKP1 / P5.1
WKP2 / P5.2
WKP3 / P5.3
WKP4 / P5.4
WKP5 / P5.5
BARCS
ARGTS
SLVBY
RFSTP
SLVRQ
ARGON
DACS
TMOV
DYCS
CKWDT
P10
R12
R16
R35
R14
R15
R17
R18
R19
R20
R21
R24
AN0
AN1
AN2
AN3
AN4
AN5
AN6
AN7
PB0 / AN0
PB1 / AN1
PB2 / AN2
PB3 / AN3
PB4 / AN4
PB5 / AN5
PB6 / AN6
PB7 / AN7
AN_GND
P1.0 / TMOW
P1.1
P1.2
P1.4 / IRQ0
P1.5 / IRQ1
P1.6 / IRQ2
P1.7 / IRQ3 / TRGV
P10
CKWDT
DYCS
IRQ0
IRQ1
P16
P17
R33
R37
R40
R43
AVcc
D6
C14
C15
J8
J9
J10
R47
R50
R26
R28
R30
R34
R38
R41
P80
P81
P83
P84
P85
P86
P87
P8.4
P8.6
P8.7
DYCLK
RSS232RX
RSS232TX
SDA
SCL
ARGON
DACS
P81
P80
FTIOB
P83
P84
MODMEAN
VREGTST
IRFOUT
ARGPRSIN
ARGFLOW
TERMRF
SNDLV
TERMPS
R25
R29
R32
R39
R44
R46
R49
R53
C8
C9
C10
C11
C12
C13
C16
C19
ADDIN
DYDIN
SLVBSY
RFBLK
ALIMBLK
SLVREQ
PWROFF
SARGFLOW
R23
R27
R31
R36
R42
R45
R48
R51
RSS232TX
SLVBY
RFSTP
SLVRQ
IRQ0
FTIOB
C17
DYIKEY
R52
IRQ1
C20
R13
R22
C24
C26
R55
R65
ARGTS
TMAT
J12
VREF
R56
R57
R58
R60
R61
R62
R67
U4
J14
TEST
C21
C18
C22
C25
R54
R59
AUDALRM
FQSND
U3
R63
R64
R66
C23
C28
C29
LSO
GND
J13
C27
U5
TMOV
TMAT
DACS
ADDIN
DYCLK
DAUX
R68
MCP42010_SMD
V1
V2
alsa apparecchi medicali s.r.l.
EXCELL MCDSe
Slave Microcontroller
BisMy03 micro slave.SCHDOC
alsa code: 801467
Rel.: 3.3
16/10/2007
Drawn by:
Approval:
alsa
bologna



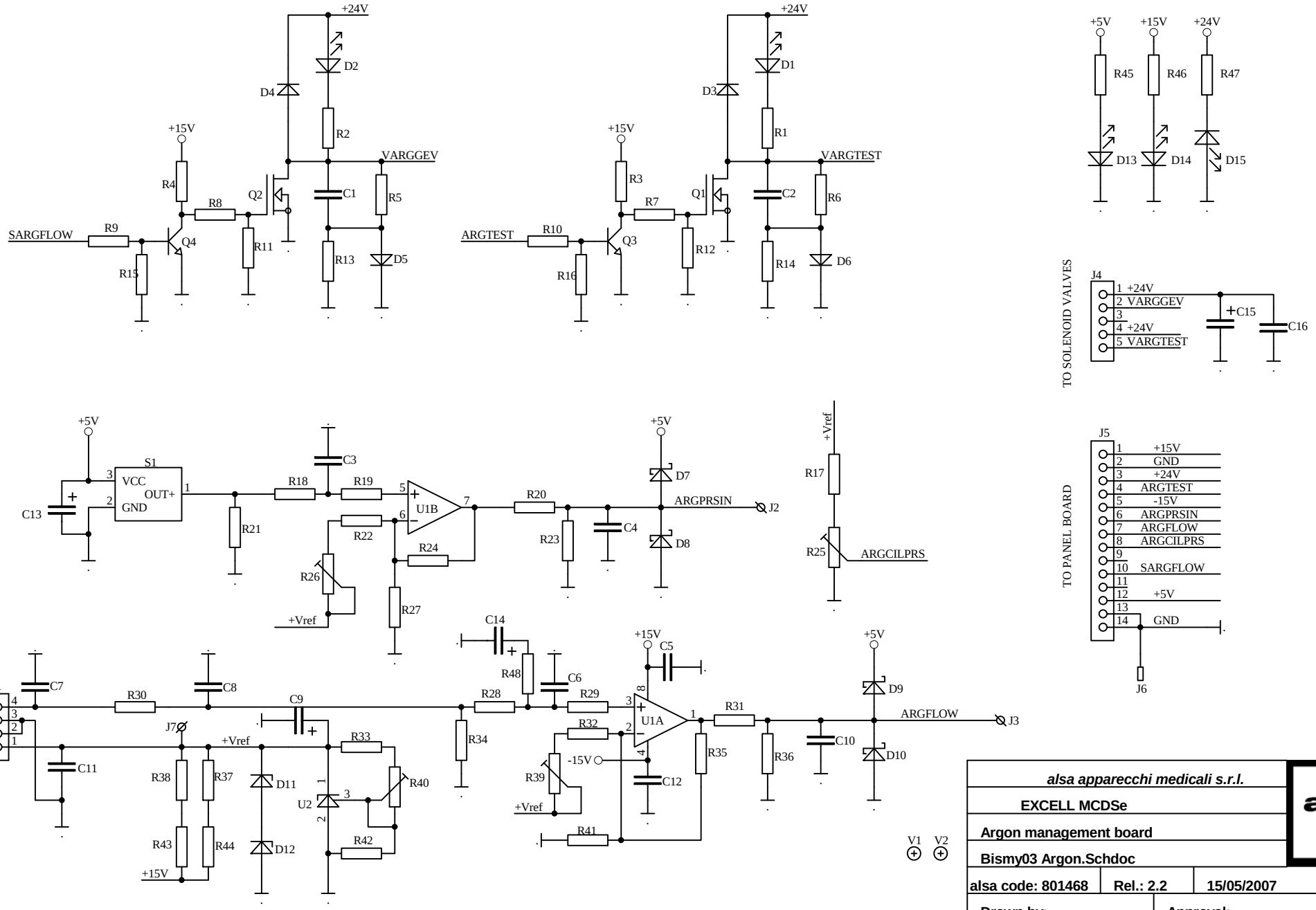
alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Slave Microcontroller		
alsa code: 801467	Rev: 3.3	16/10/2007
Drawn by:	Approval:	

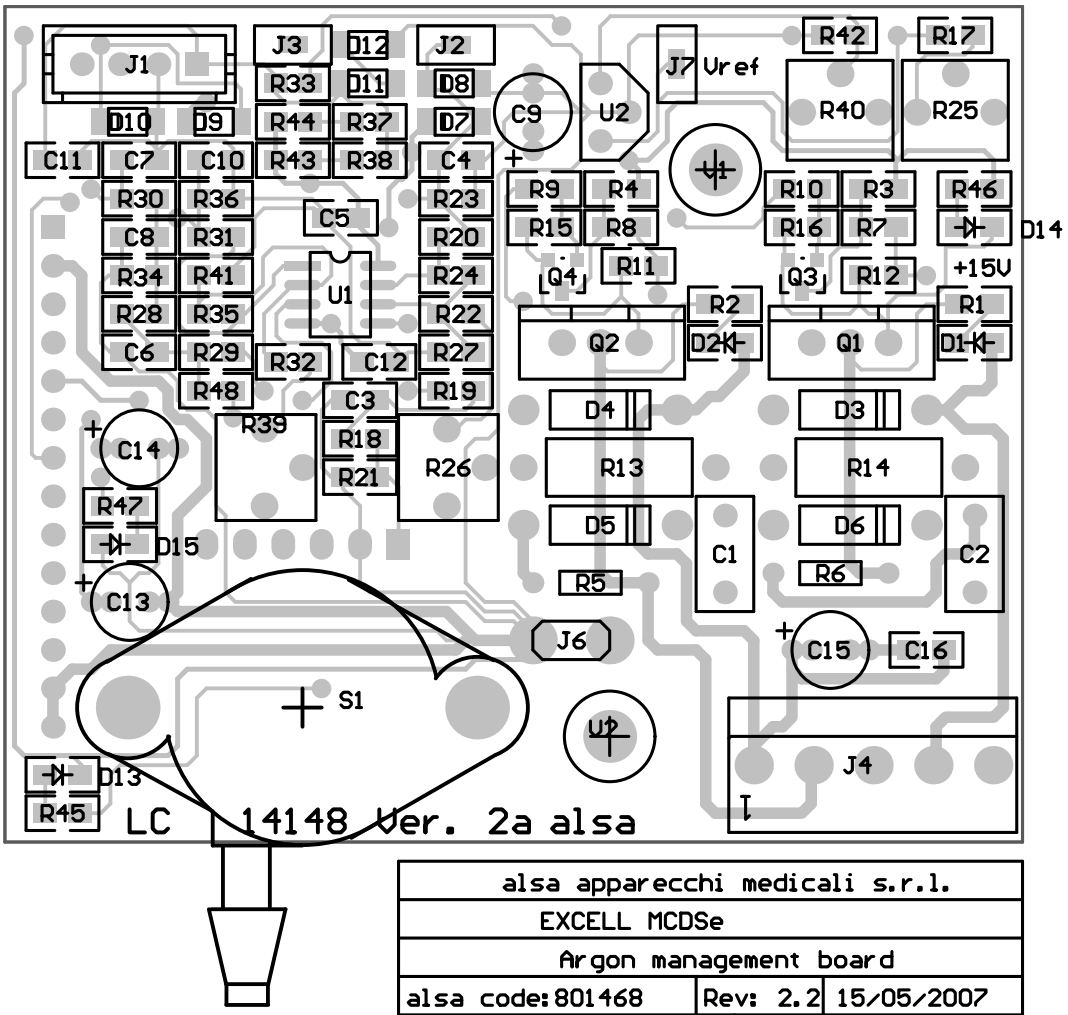
File name: Slave microcontroller board alsa code: [801467] Rev.: [3.3]
Date: October 16, 2007

Ref	Part Type	Description	alsa code
R1	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R2	47_SMD	STANDARD CHIP RESISTOR	430495/S
R3	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R4	NU	NOT USED	------
R5	NU	NOT USED	------
R6	100_SMD	STANDARD CHIP RESISTOR	430496/S
R7	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R8	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R9	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R10	100_SMD	STANDARD CHIP RESISTOR	430496/S
R11	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R12	X_RNET10K	RESISTOR NETWORK 10K	430484
R13	470_SMD	STANDARD CHIP RESISTOR	430499/S
R14	5K6/1%_SMD	1% PRECISION CHIP RESISTOR	430534/S
R15	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R16	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R17	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R18	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R19	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R20	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R21	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R22	100_SMD	STANDARD CHIP RESISTOR	430496/S
R23	100_SMD	STANDARD CHIP RESISTOR	430496/S
R24	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R25	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R26	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R27	100_SMD	STANDARD CHIP RESISTOR	430496/S
R28	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R29	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R30	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R31	100_SMD	STANDARD CHIP RESISTOR	430496/S
R32	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R33	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R34	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R35	X_RNET10K	RESISTOR NETWORK 10K	430484
R36	100_SMD	STANDARD CHIP RESISTOR	430496/S
R37	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R38	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R39	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R40	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R41	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R42	100_SMD	STANDARD CHIP RESISTOR	430496/S
R43	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R44	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R45	100_SMD	STANDARD CHIP RESISTOR	430496/S
R46	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R47	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R48	100_SMD	STANDARD CHIP RESISTOR	430496/S
R49	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R50	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R51	100_SMD	STANDARD CHIP RESISTOR	430496/S
R52	100_SMD	STANDARD CHIP RESISTOR	430496/S
R53	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R54	100K_SMD	STANDARD CHIP RESISTOR	430528/S
R55	100_SMD	STANDARD CHIP RESISTOR	430496/S
R56	330_SMD	STANDARD CHIP RESISTOR	430498/S
R57	330_SMD	STANDARD CHIP RESISTOR	430498/S
R58	2K7/1%_SMD	1% PRECISION CHIP RESISTOR	430507/S
R59	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R60	1KT/V/10G	PRESET POTENTIOMETER MULTITURN	403125
R61	330_SMD	STANDARD CHIP RESISTOR	430498/S
R62	330_SMD	STANDARD CHIP RESISTOR	430498/S
R63	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R64	22_SMD	STANDARD CHIP RESISTOR	430494/S
R65	22k_SMD	STANDARD CHIP RESISTOR	430517/S
R66	22_SMD	STANDARD CHIP RESISTOR	430494/S
R67	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R68	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R69	NU	NOT USED	------

File name: Slave microcontroller board alsa code: [801467] Rev.: [3.3]
Date: October 16, 2007

Ref	Part Type	Description	alsa code
C1	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C2	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C4	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C5	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	12P_SMD	CERAMIC CHIP CAPACITOR	400314/S
C7	12P_SMD	CERAMIC CHIP CAPACITOR	400314/S
C8	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C9	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C10	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C11	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C12	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C13	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C14	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C15	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C16	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C17	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C18	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C19	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C20	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C21	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C22	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C23	47U/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C24	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C25	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C26	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C27	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C28	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C29	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
D1	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D2	NU	NOT USED	------
D3	NU	NOT USED	------
D4	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D5	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D6	5V1_SMD	SMD ZENER DIODE	420101/S
D7	NU	NOT USED	------
U1	TC32M	WATCHDOG TIMER	482105
U2	H8/3664_SMD	16-BIT MICROCONTROLLER	482121
U3	LM386_SMD	SMD BF LM386	482104
U4	LM431	VOLTAGE REGULATOR	482078
U5	MCP42010_SMD	SMD DIGITAL POTENTIOMETER	482120
L1	6uH8/800mA	INDUCTOR	422007
XT1	16MHZ/HC18	QUARTZ CRYSTAL 16 MHZ	252012
S1	NU	NOT USED	------
J1	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J2	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J3	CONN_2PM	2 POLES MALE CONNECTOR	384052
J4	NU	NOT USED	------
J5	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J6	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J7	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J9	NU	NOT USED	------
J11	CONN_21PF	21 POLES FEMALE CONNECTOR	384047
J12	CONN_2P_B	2 POLES MALE CONNECTOR	384052
J13	CONN_2P_AMP	2 POLES MALE CONNECTOR	384068
J14	CONN_2P_B	2 POLES MALE CONNECTOR	384052


+24V
D2
D4
R2
+15V
VARGGEV
R4
R8
Q2
C1
R5
SARGFLOW
R9
Q4
R11
R13
D5
R15
+24V
D1
D3
R1
+15V
VARGTEST
R3
R7
Q1
C2
R6
ARGTEST
R10
Q3
R12
R14
D6
R16
+5V
+15V
+24V
R45
R46
R47
D13
D14
D15
TO SOLENOID VALVES
J4
1 +24V
2 VARGGEV
3
4 +24V
5 VARGTEST
C15
C16
+5V
S1
VCC
OUT+
GND
C13
C3
R18
R19
U1B
R20
D7
ARGPRSIN
J2
R21
R22
R24
R23
C4
D8
R26
+Vref
R27
+Vref
R17
R25
ARGCILPRS
J5
TO PANEL BOARD
1 +15V
2 GND
3 +24V
4 ARGTEST
5 -15V
6 ARGPRSIN
7 ARGFLOW
8 ARGCILPRS
9
10 SARGFLOW
11
12 +5V
13
14 GND
J6
C14
R48
C6
+15V
C5
+5V
J1
C7
R30
C8
C9
R28
R29
U1A
R31
D9
ARGFLOW
J3
J7
+Vref
R33
R32
R34
R35
R36
C10
D10
C11
R38
R37
D11
U2
R40
-15V
R39
C12
+Vref
R43
R44
D12
R42
R41
+15V
V1
V2
alsa apparecchi medicali s.r.l.
EXCELL MCDSe
Argon management board
Bismy03 Argon.Schdoc
alsa code: 801468
Rel.: 2.2
15/05/2007
Drawn by:
Approval:
alsa
bologna



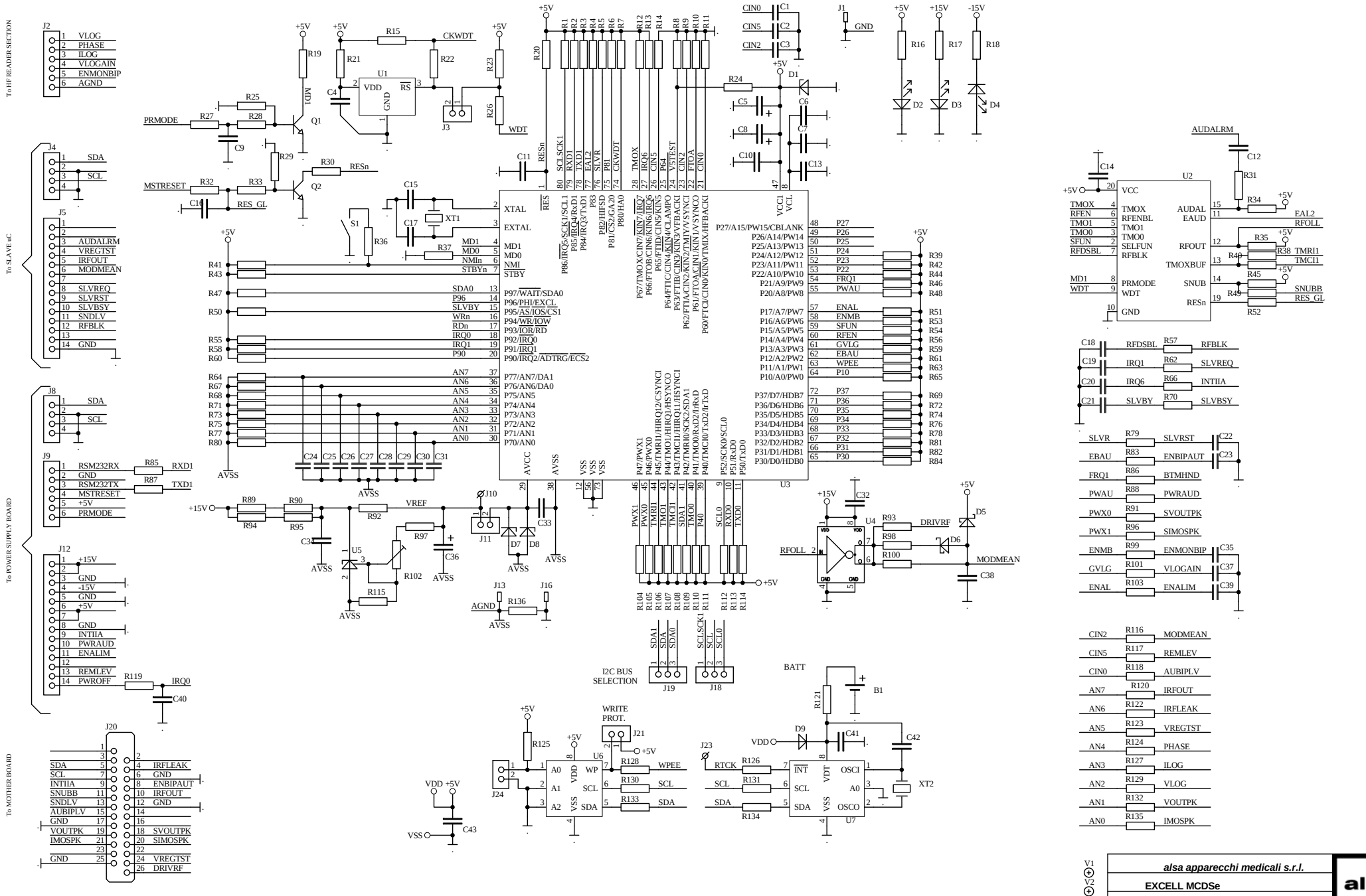
alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Argon management board		
alsa code: 801468	Rev: 2.2	15/05/2007
Drawn by:	Approval:	

File name: Argon management board alsa code: [801468] Rev.: [2.2]
Date: May 15, 2007

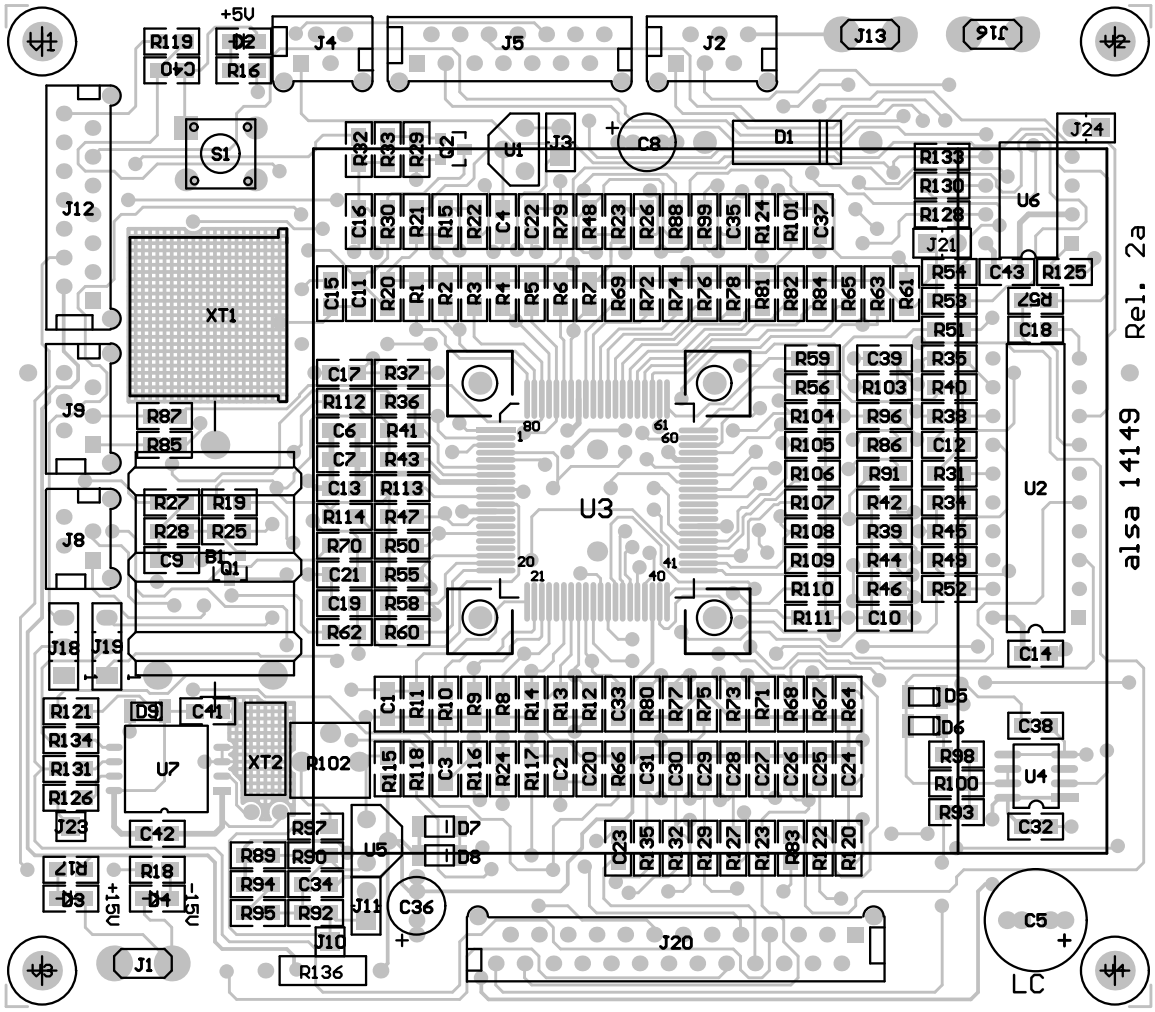
Ref.	Part Type	Description	alsa code
R1	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R2	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R3	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R4	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R5	15K	METAL FILM RESISTOR 1/4 W 5%	430345
R6	15K	METAL FILM RESISTOR 1/4 W 5%	430345
R7	100_SMD	STANDARD CHIP RESISTOR	430496/S
R8	100_SMD	STANDARD CHIP RESISTOR	430496/S
R9	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R10	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R11	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R12	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R13	100/1W	METAL FILM RESISTOR 1 W	430008
R14	100/1W	METAL FILM RESISTOR 1 W	430008
R15	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R16	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R17	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R18	470_SMD	STANDARD CHIP RESISTOR	430499/S
R19	470_SMD	STANDARD CHIP RESISTOR	430499/S
R20	470_SMD	STANDARD CHIP RESISTOR	430499/S
R21	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R22	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R23	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R24	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R25	NU	NOT USED	------
R26	5KT/6mm	MINIATURE TRIMMER	403113/S
R27	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R28	470_SMD	STANDARD CHIP RESISTOR	430499/S
R29	470_SMD	STANDARD CHIP RESISTOR	430499/S
R30	100_SMD	STANDARD CHIP RESISTOR	430496/S
R31	470_SMD	STANDARD CHIP RESISTOR	430499/S
R32	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R33	8K/1%_SMD	PRECISION RESISTOR 1%	430563/S
R34	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R35	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R36	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R37	100_SMD	STANDARD CHIP RESISTOR	430496/S
R38	100_SMD	STANDARD CHIP RESISTOR	430496/S
R39	5KT/6mm	MINIATURE TRIMMER	403113/S
R40	2KT/6mm	MINIATURE TRIMMER	403112/S
R41	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R42	3K/1%_SMD	PRECISION RESISTOR 1%	430533/S
R43	100_SMD	STANDARD CHIP RESISTOR	430496/S
R44	100_SMD	STANDARD CHIP RESISTOR	430496/S
R45	NU	NOT USED	------
R46	NU	NOT USED	------
R47	NU	NOT USED	------
R48	100_SMD	STANDARD CHIP RESISTOR	430496/S
C1	100N/P/100V	METALLIZED FILM CAPACITOR	400313
C2	100N/P/100V	METALLIZED FILM CAPACITOR	400313
C3	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C4	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C5	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C7	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C8	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C9	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C10	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C11	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C12	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C13	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C14	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C15	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C16	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
D3	1N4007	DIODE	420001
D4	1N4007	DIODE	420001
D5	1N4007	DIODE	420001
D6	1N4007	DIODE	420001
D7	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S

File name: Argon management board alsa code: [801468] Rev.: [2.2]
Date: May 15, 2007

Ref.	Part Type	Description	alsa code
D8	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D9	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D10	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D11	5V1_SMD	SMD ZENER DIODE	420101/S
D12	5V1_SMD	SMD ZENER DIODE	420101/S
D13	NU	NOT USED	------
D14	NU	NOT USED	------
D15	NU	NOT USED	------
Q1	IRF540	N CHANNEL MOSFET	427079
Q2	IRF540	N CHANNEL MOSFET	427079
Q3	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q4	BC817_SMD	SMD NPN TRANSISTOR	427089/S
U1	TL072_SMD	SMD OP.AMP. TL072	482125
U2	LM431	VOLTAGE REGULATOR	482078
S1	MPX5700	ABSOLUTE PRESSURE SENSOR	482110
J1	CONN_4P_AMP	4 POLES MALE CONNECTOR	384061
J4	384016	5 POLES PCB CONNECTOR MASCON	384016
J5	CONN_14PM	14 POLES MALE CONNECTOR	384065
J6	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030



alsa apparecchi medicali s.r.l.	
EXCELL MCDSe	
Master Microcontroller Board	
Bismy03MicroMaster.SchDoc	
alsa code: 801469	Rel. 2.2 — 15/05/2007
Drawn by: Gianni Rocca	Approval:



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Master Microcontroller Board		
alsa code: 801469	Rev: 2.2	15/05/2007
Drawn by:	Approval:	

File name: Master microcontroller board alsa code: [801469] Rev.: [2.2]
Date: May 15, 2007

Ref	Part Type	Description	alsa code
R1	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R2	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R3	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R4	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R5	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R6	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R7	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R8	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R9	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R10	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R11	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R12	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R13	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R14	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R15	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R16	NU	NOT USED	------
R17	NU	NOT USED	------
R18	NU	NOT USED	------
R19	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R20	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R21	47_SMD	STANDARD CHIP RESISTOR	430495/S
R22	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R23	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R24	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R25	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R26	220_SMD	STANDARD CHIP RESISTOR	430497/S
R27	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R28	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R29	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R30	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R31	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R32	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R33	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R34	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R35	2k2_SMD	STANDARD CHIP RESISTOR	430506/S
R36	100_SMD	STANDARD CHIP RESISTOR	430496/S
R37	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R38	100_SMD	STANDARD CHIP RESISTOR	430496/S
R39	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R40	100_SMD	STANDARD CHIP RESISTOR	430496/S
R41	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R42	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R43	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R44	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R45	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R46	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R47	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R48	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R49	100_SMD	STANDARD CHIP RESISTOR	430496/S
R50	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R51	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R52	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R53	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R54	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R55	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R56	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R57	100_SMD	STANDARD CHIP RESISTOR	430496/S
R58	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R59	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R60	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R61	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R62	220_SMD	STANDARD CHIP RESISTOR	430497/S
R63	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R64	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R65	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R66	220_SMD	STANDARD CHIP RESISTOR	430497/S
R67	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R68	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R69	10K_SMD	STANDARD CHIP RESISTOR	430513/S

File name: Master microcontroller board alsa code: [801469] Rev.: [2.2]
Date: May 15, 2007

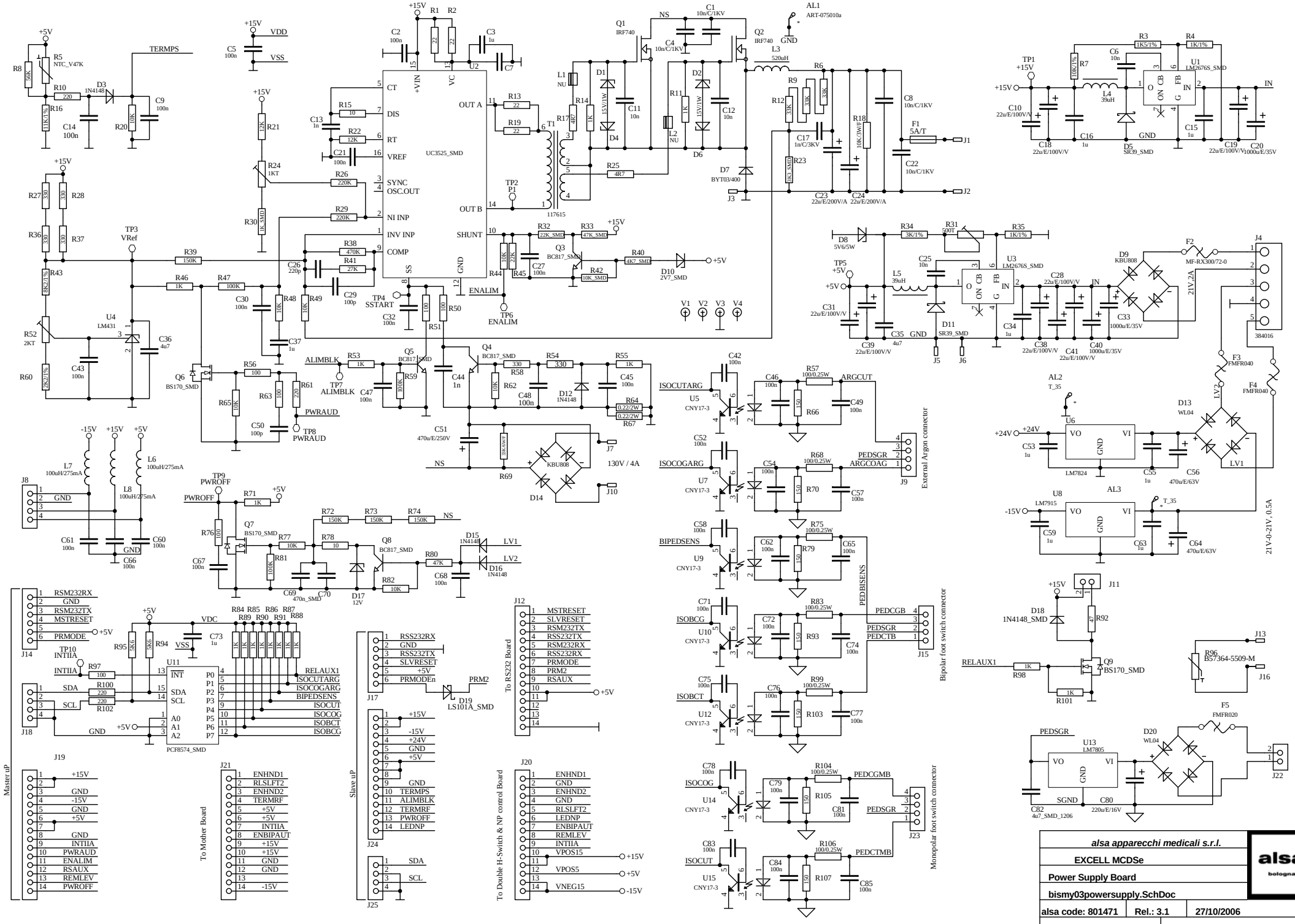
Ref	Part Type	Description	alsa code
R70	220_SMD	STANDARD CHIP RESISTOR	430497/S
R71	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R72	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R73	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R74	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R75	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R76	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R77	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R78	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R79	220_SMD	STANDARD CHIP RESISTOR	430497/S
R80	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R81	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R82	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R83	220_SMD	STANDARD CHIP RESISTOR	430497/S
R84	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R85	100_SMD	STANDARD CHIP RESISTOR	430496/S
R86	100_SMD	STANDARD CHIP RESISTOR	430496/S
R87	100_SMD	STANDARD CHIP RESISTOR	430496/S
R88	100_SMD	STANDARD CHIP RESISTOR	430496/S
R89	330_SMD	STANDARD CHIP RESISTOR	430498/S
R90	330_SMD	STANDARD CHIP RESISTOR	430498/S
R91	100_SMD	STANDARD CHIP RESISTOR	430496/S
R92	100_SMD	STANDARD CHIP RESISTOR	430496/S
R93	47_SMD	STANDARD CHIP RESISTOR	430495/S
R94	330_SMD	STANDARD CHIP RESISTOR	430498/S
R95	330_SMD	STANDARD CHIP RESISTOR	430498/S
R96	100_SMD	STANDARD CHIP RESISTOR	430496/S
R97	2K7/1%_SMD	1% PRECISION CHIP RESISTOR	430507/S
R98	220_SMD	STANDARD CHIP RESISTOR	430497/S
R99	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R100	8K2/1%_SMD	1% PRECISION CHIP RESISTOR	430539/S
R101	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R102	1KT	PRESET POTENTIOMETER CERMET	403063
R103	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R104	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R105	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R106	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R107	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R108	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R109	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R110	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R111	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R112	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R113	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R114	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R115	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R116	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R117	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R118	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R119	220_SMD	STANDARD CHIP RESISTOR	430497/S
R120	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R121	NU	NOT USED	------
R122	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R123	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R124	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R125	10k_SMD	STANDARD CHIP RESISTOR	430513/S
R126	NU	NOT USED	------
R127	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R128	220_SMD	STANDARD CHIP RESISTOR	430497/S
R129	1k/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R130	220_SMD	STANDARD CHIP RESISTOR	430497/S
R131	NU	NOT USED	------
R132	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R133	220_SMD	STANDARD CHIP RESISTOR	430497/S
R134	NU	NOT USED	------
R135	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R136	0/0	0 OHM RESISTOR	430446
C1	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C2	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S

File name: Master microcontroller board alsa code: [801469] Rev.: [2.2]
Date: May 15, 2007

Ref	Part Type	Description	alsa code
C3	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C4	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C5	22U/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C6	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C7	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C8	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C9	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C10	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C11	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C12	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C13	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C14	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C15	33p_SMD	CERAMIC CHIP CAPACITOR	400334/S
C16	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C17	33p_SMD	CERAMIC CHIP CAPACITOR	400334/S
C18	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C19	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C20	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C21	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C22	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C23	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C24	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C25	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C26	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C27	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C28	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C29	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C30	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C31	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C32	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C34	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C35	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C36	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C37	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C38	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C39	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C40	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C41	NU	NOT USED	------
C42	NU	NOT USED	------
C43	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
D1	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D2	NU	NOT USED	------
D3	NU	NOT USED	------
D4	NU	NOT USED	------
D5	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D6	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D7	5V1_SMD	SMD ZENER DIODE	420101/S
D8	5V1_SMD	SMD ZENER DIODE	420101/S
D9	NU	NOT USED	------
Q1	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q2	BC817_SMD	SMD NPN TRANSISTOR	427089/S
U1	TC32M	WATCHDOG TIMER	482105
U2	GAL_BIS7	GAL 16V8 FOR NHP-MCDSE	714243
U3	HD64F2138_SMD	16/32-BIT MICROCONTROLLER	482137
U4	MIC4451_SMD	SMD INVERTING MOSFET DRIVER	482122
U5	LM431	VOLTAGE REGULATOR	482078
U6	24C256	CMOS SERIAL EEPROM	482138
U7	NU	NOT USED	------
XT1	20MHZ/HC18	QUARTZ CRYSTAL 20 MHZ	252013
XT2	NU	NOT USED	------
S1	NU	NOT USED	------
J1	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J2	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J3	CONN_2PM	2 POLES MALE CONNECTOR	384052
J4	NU	NOT USED	------
J5	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J8	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J9	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048

File name: Master microcontroller board alsa code: [801469] Rev.: [2.2]
Date: May 15, 2007

Ref	Part Type	Description	alsa code
J11	CONN_2PM	2 POLES MALE CONNECTOR	384052
J12	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J13	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J16	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J18	conn_3p_b	3 POLES MALE CONNECTOR	384069
J19	conn_3p_b	3 POLES MALE CONNECTOR	384069
J20	PICO_26	26 POLES PICOFLEX CONN. MALE P.C.B.	384044
J21	NU	NOT USED	------
J24	CONN_2PM	2 POLES MALE CONNECTOR	384052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PWRAUD
PWROFF
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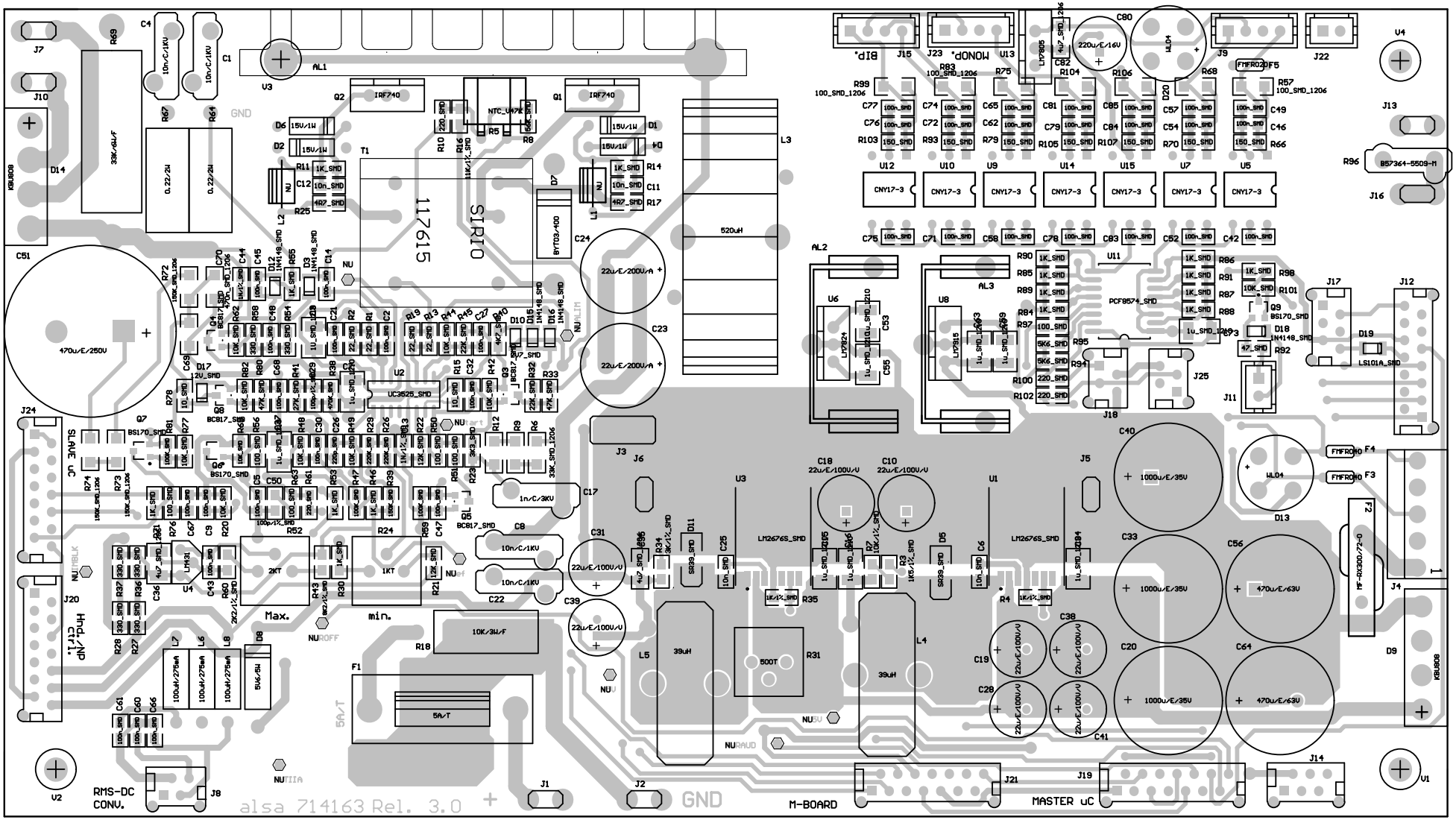
ISOCOGARG
BIPEDSENS
ISOCUT
ISOCOG
ISOBCT
ISOBCG
RELAUX1
INTIIA
PRMODE
PRM2
PEDSGR
PEDCTB
PEDCGB
PEDCGMB
PEDCTMB
130V / 4A
21V-0-21V, 0.5A
Master uP
Slave uP
To Mother Board
To RS232 Board
To Double H-Switch & NP control Board
Bipolar foot switch connector
Monopolar foot switch connector
External Argon connector
alsa apparecchi medicali s.r.l.
EXCELL MCDSe
Power Supply Board
bismy03powersupply.SchDoc
alsa code: 801471
Rel.: 3.1
27/10/2006
Drawn by:
Approval:



alsa apparecchi medicali s.r.l.		
EXCELL MCDSe		
Power Supply Board		
alsa code: 801471	Rev: 3.1	27/10/2006
Drawn by:	Approval:	

File name: Power supply board alsa code: [801471] Rev.: [3.1]
Date: October 27, 2006

Ref	Part Type	Description	alsa code
R1	22_SMD	STANDARD CHIP RESISTOR	430494/S
R2	22_SMD	STANDARD CHIP RESISTOR	430494/S
R3	1K5/1%_SMD	1% PRECISION CHIP RESISTOR	430504/S
R4	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R5	NTC_V47K	NTC THERMISTOR THREADED 47K 5%	430452
R6	33K_SMD_1206	STANDARD CHIP RESISTOR	430548/S
R7	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R8	56K_SMD	STANDARD CHIP RESISTOR	430522/S
R9	33K_SMD_1206	STANDARD CHIP RESISTOR	430548/S
R10	220_SMD	STANDARD CHIP RESISTOR	430497/S
R11	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R12	33K_SMD_1206	STANDARD CHIP RESISTOR	430548/S
R13	22_SMD	STANDARD CHIP RESISTOR	430494/S
R14	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R15	10_SMD	STANDARD CHIP RESISTOR	430493/S
R16	11K/1%_SMD	1% PRECISION CHIP RESISTOR	430552/S
R17	4R7_SMD	STANDARD CHIP RESISTOR	430553/S
R18	10K/3W/F	WIREWOUND RESISTOR 3 W	430238
R19	22_SMD	STANDARD CHIP RESISTOR	430494/S
R20	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R21	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R22	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R23	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R24	1KT	PRESET POTENTIOMETER CERMET	403063
R25	4R7_SMD	STANDARD CHIP RESISTOR	430553/S
R26	220K_SMD	STANDARD CHIP RESISTOR	430554/S
R27	330_SMD	STANDARD CHIP RESISTOR	430498/S
R28	330_SMD	STANDARD CHIP RESISTOR	430498/S
R29	220K_SMD	STANDARD CHIP RESISTOR	430554/S
R30	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R31	500T	PRESET POTENTIOMETER CERMET	403080
R32	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R33	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R34	3K/1%_SMD	1% PRECISION CHIP RESISTOR	430533/S
R35	1K/1%_SMD	1% PRECISION CHIP RESISTOR	430532/S
R36	330_SMD	STANDARD CHIP RESISTOR	430498/S
R37	330_SMD	STANDARD CHIP RESISTOR	430498/S
R38	470K_SMD	STANDARD CHIP RESISTOR	430555/S
R39	150K_SMD	STANDARD CHIP RESISTOR	430556/S
R40	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R41	27K_SMD	STANDARD CHIP RESISTOR	430518/S
R42	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R43	8K2/1%_SMD	1% PRECISION CHIP RESISTOR	430539/S
R44	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R45	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R46	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R47	100K_SMD	STANDARD CHIP RESISTOR	430528/S
R48	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R49	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R50	100_SMD	STANDARD CHIP RESISTOR	430496/S
R51	100_SMD	STANDARD CHIP RESISTOR	430496/S
R52	2KT	PRESET POTENTIOMETER CERMET	403092
R53	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R54	330_SMD	STANDARD CHIP RESISTOR	430498/S
R55	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R56	100_SMD	STANDARD CHIP RESISTOR	430496/S
R57	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R58	330_SMD	STANDARD CHIP RESISTOR	430498/S
R59	100K_SMD	STANDARD CHIP RESISTOR	430528/S
R60	2K2/1%_SMD	1% PRECISION CHIP RESISTOR	430557/S
R61	220_SMD	STANDARD CHIP RESISTOR	430497/S
R62	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R63	100_SMD	STANDARD CHIP RESISTOR	430496/S
R64	0.22/2W	METAL FILM RESISTOR 2 W	430439
R65	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R66	150_SMD	STANDARD CHIP RESISTOR	430531/S
R67	0.22/2W	METAL FILM RESISTOR 2 W	430439
R68	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R69	33K/6W/F	WIREWOUND RESISTOR 33 K 6 W	430463

File name: Power supply board alsa code: [801471] Rev.: [3.1]
Date: October 27, 2006

Ref	Part Type	Description	alsa code
R70	150_SMD	STANDARD CHIP RESISTOR	430531/S
R71	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R72	150K_SMD_1206	STANDARD CHIP RESISTOR	430549/S
R73	150K_SMD_1206	STANDARD CHIP RESISTOR	430549/S
R74	150K_SMD_1206	STANDARD CHIP RESISTOR	430549/S
R75	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R76	100_SMD	STANDARD CHIP RESISTOR	430496/S
R77	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R78	10_SMD	STANDARD CHIP RESISTOR	430493/S
R79	150_SMD	STANDARD CHIP RESISTOR	430531/S
R80	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R81	100K_SMD	STANDARD CHIP RESISTOR	430528/S
R82	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R83	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R84	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R85	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R86	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R87	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R88	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R89	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R90	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R91	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R92	47_SMD	STANDARD CHIP RESISTOR	430495/S
R93	150_SMD	STANDARD CHIP RESISTOR	430531/S
R94	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R95	5K6_SMD	STANDARD CHIP RESISTOR	430512/S
R96	B57364-5509-M	DISK 5 OHMS NTC	430546
R97	100_SMD	STANDARD CHIP RESISTOR	430496/S
R98	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R99	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R100	220_SMD	STANDARD CHIP RESISTOR	430497/S
R101	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R102	220_SMD	STANDARD CHIP RESISTOR	430497/S
R103	150_SMD	STANDARD CHIP RESISTOR	430531/S
R104	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R105	150_SMD	STANDARD CHIP RESISTOR	430531/S
R106	100_SMD_1206	STANDARD CHIP RESISTOR	430540/S
R107	150_SMD	STANDARD CHIP RESISTOR	430531/S
C1	10n/C/1KV	CERAMIC CAPACITOR	400133
C2	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	1U_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C4	10n/C/1KV	CERAMIC CAPACITOR	400133
C5	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C7	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C8	10n/C/1KV	CERAMIC CAPACITOR	400133
C9	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C10	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C11	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C12	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C13	1N/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C14	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C15	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C16	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C17	1n/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400224
C18	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C19	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C20	1000u/E/35V	ELECTROLYTIC CAPACITOR	400256
C21	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C22	10n/C/1KV	CERAMIC CAPACITOR	400133
C23	22u/E/200V/A	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400324
C24	22u/E/200V/A	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400324
C25	10n_SMD	CERAMIC CHIP CAPACITOR	400319/S
C26	220p_SMD	CERAMIC CHIP CAPACITOR	400330/S
C27	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C28	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C29	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C30	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C31	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286

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C32	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	1000u/E/35V	ELECTROLYTIC CAPACITOR	400256
C34	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C35	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C36	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C37	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C38	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C39	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C40	1000u/E/35V	ELECTROLYTIC CAPACITOR	400256
C41	22u/E/100V/V	VERTICAL ELECTROLYTIC CAPACITOR SMPS	400286
C42	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C43	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C44	1N/1%_SMD	1% CERAMIC CHIP CAPACITOR	400318/S
C45	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C46	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C47	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C48	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C49	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C50	100p/1%_SMD	1% CERAMIC CHIP CAPACITOR	400316/S
C51	470u/E/250V	VERTICAL ELECTROLYTIC CAPACITOR	400304
C52	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C53	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C54	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C55	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C56	470u/E/63V	ELECTROLYTIC CAPACITOR	400155
C57	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C58	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C59	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C60	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C61	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C62	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C63	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C64	470u/E/63V	ELECTROLYTIC CAPACITOR	400155
C65	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C66	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C67	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C68	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C69	470n_SMD_1206	CERAMIC CHIP CAPACITOR	400328/S
C70	470n_SMD_1206	CERAMIC CHIP CAPACITOR	400328/S
C71	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C72	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C73	1u_SMD_1210	CERAMIC CHIP CAPACITOR	400326/S
C74	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C75	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C76	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C77	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C78	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C79	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C80	220u/E/16V	ELECTROLYTIC CAPACITOR	400274
C81	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C82	4u7_SMD_1206	CERAMIC CHIP CAPACITOR	400327/S
C83	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C84	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
C85	100n_SMD	CERAMIC CHIP CAPACITOR	400320/S
D1	15V/1W	ZENER DIODE 15V/1W	420097
D2	15V/1W	ZENER DIODE 15V/1W	420097
D3	1N4148_SMD	SMD DIODE	420098/S
D4	15V/1W	ZENER DIODE 15V/1W	420097
D5	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D6	15V/1W	ZENER DIODE 15V/1W	420097
D7	BYT03/400	ULTRA FAST DIODE 3A/400V	420071
D8	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D9	KBU808	BRIDGE RECTIFIER 8A/800V	420117
D10	2V7_SMD	SMD ZENER DIODE	420099/S
D11	SR39_SMD	SMD 90V-3A SCHOTTKY DIODE	420114
D12	1N4148_SMD	SMD DIODE	420098/S
D13	WL04	BRIDGE RECTIFIER 1A	420013
D14	KBU808	BRIDGE RECTIFIER 8A/800V	420117
D15	1N4148_SMD	SMD DIODE	420098/S

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D16	1N4148_SMD	SMD DIODE	420098/S
D17	12V_SMD	SMD ZENER DIODE	420103/S
D18	1N4148_SMD	SMD DIODE	420098/S
D19	LS101A_SMD	SMD SCHOTTKY DIODE	420111/S
D20	WL04	BRIDGE RECTIFIER 1A	420013
Q1	IRF740	N CHANNEL MOSFET	427076
Q2	IRF740	N CHANNEL MOSFET	427076
Q3	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q4	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q5	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q6	BS170_SMD	SMD N CHANNEL MOSFET	427091
Q7	BS170_SMD	SMD N CHANNEL MOSFET	427091
Q8	BC817_SMD	SMD NPN TRANSISTOR	427089/S
Q9	BS170_SMD	SMD N CHANNEL MOSFET	427091
U1	LM2676S_SMD	SMD SWITCHING VOLTAGE REGULATOR	482123
U2	UC3525_SMD	SMD PWM UC3525	482136
U3	LM2676S_SMD	SMD SWITCHING VOLTAGE REGULATOR	482123
U4	LM431	VOLTAGE REGULATOR	482078
U5	CNY17-3	OPTOCOUPLER CNY17-3	482022
U6	LM7824	VOLTAGE REGULATOR +24V	482126
U7	CNY17-3	OPTOCOUPLER CNY17-3	482022
U8	LM7915	VOLTAGE REGULATOR -15V	482087
U9	CNY17-3	OPTOCOUPLER CNY17-3	482022
U10	CNY17-3	OPTOCOUPLER CNY17-3	482022
U11	PCF8574_SMD	SMD II_CBUS I/O EXPANDER	482128
U12	CNY17-3	OPTOCOUPLER CNY17-3	482022
U13	LM7805	VOLTAGE REGULATOR LM7805	482003
U14	CNY17-3	OPTOCOUPLER CNY17-3	482022
U15	CNY17-3	OPTOCOUPLER CNY17-3	482022
L1	NU	NOT USED	------
L2	NU	NOT USED	------
L3	520uH	TOROIDAL INDUCTOR	713623
L4	39uH	INDUCTOR	714201
L5	39uH	INDUCTOR	714201
L6	100uH/275mA	INDUCTOR	422006
L7	100uH/275mA	INDUCTOR	422006
L8	100uH/275mA	INDUCTOR	422006
T1	117615	PULSE TRANSFORMER (2 SECONDARIES)	421031
J1	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J2	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J3	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J4	384016	5 POLES PCB CONNECTOR MASCON	384016
J5	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J6	399030	4.8 MM FASTON CONNECTOR P.C.B.	399030
J7	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J8	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J9	CONN_4P_AMP	4 POLES MALE CONNECTOR	384061
J10	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J11	CONN_2P_AMP	POLARIZED 2 POLES MALE CONNECTOR	384068
J12	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J13	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J14	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J15	CONN_4P_AMP	4 POLES MALE CONNECTOR	384061
J16	399028	6.3 MM FASTON CONNECTOR P.C.B.	399028
J17	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J18	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J19	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J20	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J21	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J22	CONN_2P_AMP	POLARIZED 2 POLES MALE CONNECTOR	384068
J23	CONN_4P_AMP	4 POLES MALE CONNECTOR	384061
J24	PICO_14	14 POLES PICOFLEX CONN. MALE P.C.B.	384040
J25	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
AL1	ART-075010a	ALUMINIUM HEAT SINK	714175
AL2	T_35	ALUMINIUM HEAT SINK	499199
AL3	T_35	ALUMINIUM HEAT SINK	499199
F1	5A/T	FUSE 5 A T 5X20 MM	433048
F2	MF-RX300/72-03	AMP RESETTABLE FUSE	433058
F3	FMFR040	400 MA RESETTABLE FUSE	433056

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F4	FMFR040	400 MA RESETTABLE FUSE	433056
F5	FMFR020	200 MA RESETTABLE FUSE	433055